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STATEMENT OF THE CONDITION

OF THE

LIFE INSURANCE COMPANIES

FROM OTHER STATES,

TRANSACTING BUSINESS IN THE STATE OF
CONNECTICUT.

Statement of the Atlantic Mutual Life Insurance Company, Albany, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.			
Amount of Capital paid in,	-	-	\$110,000.00
Accumulations and Balances treated as Assets,	-	-	65,532.49
Whole amount of Assets,			\$175,532.49
ASSETS.			
Amount of Cash on hand and in Banks,	-	-	8,331.94
Real Estate owned by the Company,	-	-	
Loans on Real Estate,	-	-	
Loans on Collaterals,	-	-	
Invested in Bank Stocks,	-	-	
Invested in State, City, Town and County Securities,	-	-	
Invested in United States Securities,	-	-	123,000.00
Invested in Other Stocks, Bonds and Securities,	-	-	
Deferred Premiums treated as Assets,	-	-	9,255.85
Commuted Commissions, treated as assets,	-	-	3,764.40
Premium Notes, treated as assets,	-	-	5,744.00
Due from Agents, and Premiums due, treated as assets,	-	-	24,016.06
Accrued Rents, Interest, &c., treated as assets,	-	-	1,305.36
All other Assets, treated as assets,	-	-	114.88
			\$175,532.49
LIABILITIES.			
Losses and Claims acknowledged,	-	-	
Losses not acted upon,	-	-	
Dividends due and unclaimed,	-	-	
Payable ann. to annuitants,		Present value,	
Insured by the Company, \$1,815,750		Present value,	not reported,
Dividends added to above,		Present value,	
Gross Liabilities,	\$1,815,760		
Capital Stock,	-	-	110,000.00
All other Liabilities,	-	-	182.12
			\$110,182.12

REMARKS.

Unrealized Assets, included in the Statement.

Deferred Premiums,	-	-	-	\$9,255.85
Premium Notes,	-	-	-	5,744.00
Due from Agents,	-	-	-	24,016.06
Commuted Commissions,	-	-	-	3,764.40
Accrued Interest,	-	-	-	1,305.36
				\$44,085.67

LEVI B. SMITH, *Secretary.*ROBERT H. PRUYN, *President.*

Attorney, W. C. WILLIAMS, Cheshire.

*Statement of the Berkshire Life Insurance Company, Pittsfield, Mass.,
as condensed from their Reports to January 1, 1867, to the Commis-
sioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - - -	\$53,000.00
Accumulations and Balances treated as Assets, -	625,277.37
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Whole amount of Assets, - - - -	\$678,277.37

ASSETS.

Amount of Cash on hand and in Banks, - -	\$13,584.70
Real Estate owned by the Company, - -	11,000.00
Loans on Real Estate, - - - -	83,700.00
Loans on Collaterals, - - - -	13,400.00
Invested in Bank Stock, - - - -	89,942.00
Invested in State, City, Town and County Securities,	
Invested in United States Securities, -	163,475.00
Invested in Other Stocks, Bonds and Securities,	77,000.00
Deferred Premiums treated as Assets, - -	
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - -	164,883.69
Due from Agents, and Premiums due, treated as assets,	43,759.71
Accrued Rents, Interest, &c., treated as assets, -	
All other assets, treated as assets, - - -	17,532.29
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	\$678,277.37

LIABILITIES.

Losses and Claims acknowledged, - - -	\$16,200.00
Losses not acted upon, - - - -	1,000.00
Dividends due and unclaimed, - - - -	
Payable ann. to annuitants, Present value,	
Insured by the Company, \$5,210,000 Present value,	468,579.00
Dividends Added to above, 99,670 Present value,	83,273.60
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Gross liabilities, \$5,309,678	
Capital Stock, - - - -	53,000.00
All other Liabilities, - - - -	
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	\$622,052.60

REMARKS.

Unrealized Assets, included in the Statement.

Premium Notes, - - - -	\$164,883.69
Due from Agents, - - - -	43,759.71
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	\$208,643.40

BENJ. CHICKERING, *Secretary.* THOS. F. PLUNKETT, *President.*
Attorney, E. B. HOTCHKISS, Berlin.

*Statement of the Brooklyn Life Insurance Company, Brooklyn, N. Y.
as condensed from their Reports to January 1, 1867, to the Commis-
sioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$125,000.00
Accumulations and Balances treated as Assets, -	279,411.52
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Whole amount of Assets, - - -	\$404,411.52

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$28,498.66
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - - - -	
“ “ Collaterals, - - - - -	
Invested in Bank Stocks, - - - - -	
“ “ State, City, Town and County Securities, - - -	
“ “ United States Securities, - - -	181,846.25
“ “ Other Stocks, Bonds and Securities, - - -	
Deferred Premiums treated as Assets, - - -	14,762.46
Commuted Commissions, “ “ - - -	
Premium Notes, “ “ - - -	119,706.79
Due from Agents, and Premiums due, treated as Assets, -	53,168.52
Accrued Rents, Interest, &c., “ “ - - -	2,295.93
All other Assets, - - - - -	4,132.92
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	\$404,411.52

LIABILITIES.

Losses and Claims acknowledged, - - -	\$6,000.00
Losses not acted upon, - - - - -	
Amount of Dividends due and unclaimed, - - -	
Payable ann. to annuitants, Present value,	
Insured by the Company, \$5,214.000 Present value,	\$288,467.00
Dividends added to above, Present value,	
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Gross Liabilities, \$5,214.000	
Capital Stock, - - - - -	\$125,000.00
All other Liabilities, - - - - -	4,153.79
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	\$363,621.79

REMARKS.

Unrealized Assets included in the Statement.

Premium Notes, - - - - -	\$119,706.79
Due from Agents, - - - - -	53,168.52
Rents, &c., - - - - -	6,428.97
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	\$179,304.28

RICHARD H. HARDING, *Secretary*. CHRISTIAN W. BUCK, *President*
Attorney,

Statement of the Excelsior Life Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$125,000.00
Accumulations and Balances treated as Assets,	-	-	-	616.85
Whole amount of Assets,	-	-	-	<u>\$125,616.85</u>

ASSETS.

Amount of Cash on Hand and in Banks,	-	-	2,009.45
Real Estate owned by the Company,	-	-	
Loans on Real Estate,	-	-	
Loans on Collaterals,	-	-	
Invested in Bank Stocks,	-	-	
Invested in State, City, Town and County Securities,	-	-	
Invested in United States Securities,	-	-	122,040.00
Invested in Other Stocks, Bonds and Securities,	-	-	
Deferred Premiums treated as Assets,	-	-	
Commuted Commissions, treated as Assets,	-	-	291.65
Premium Notes, treated as Assets,	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	66.73
Accrued Rents, Interest, &c., treated as Assets,	-	-	
All other Assets, treated as Assets,	-	-	1,209.02
			<u>\$125,616.85</u>

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses not acted upon,	-	-	-	
Amount of Dividend due and unclaimed,	-	-	-	
Payable ann. to annuitants, \$			Present value, \$	
Insured by the Company,			Present value,	
Dividends added to above,			Present value,	
Gross Liabilities, \$				
Capital Stock, -	-	-	-	\$125,000.00
All other Liabilities,	-	-	-	2,500.00
				<u>\$127,500.00</u>

A newly Organized Company.

REMARKS.

SIDNEY WARD, *Secretary.*SAMUEL T. HOWARD, *President.**Attorney, JAS. S. TRYON, Hartford.*

Statement of the Germania Life Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	1,040,299.65
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Whole amount of Assets, - - -	\$1,240,299.65

ASSETS.

Amount of Cash on hand and in Banks, - - -	43,648.67
Real Estate owned by the Company, - - -	-
Loans on Real Estate, - - - - -	640,400.00
Loans on Collaterals, - - - - -	2,200.00
Invested in Bank Stocks, - - - - -	13,050.00
Invested in State, City, Town and County Securities,	-
Invested in United States Securities, - - -	260,240.00
Invested in Other Stocks, Bonds and Securities, -	-
Deferred Premiums treated as Assets, - - -	195,000.00
Commuted Commissions, treated as Assets, - - -	-
Premium Notes, treated as Assets, - - -	-
Due from Agents, and Premiums due, treated as Assets,	68,623.99
Accrued Rents, Interest, &c., treated as Assets, -	13,914.71
All other Assets, - - - - -	3,222.28
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	\$1,240,299.65

LIABILITIES.

Losses and Claims acknowledged, - - - - -	\$7,500.00
Losses not acted upon, - - - - -	12,750.00
Amount of Dividends due and unclaimed, - - -	-
* Payable ann. to annu'ts, \$425 Present value,	\$10,000.00
Insured by the Company, 20,724.789 Present value,	904,000.00
Dividends added to above, Present value,	-
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Gross Liabilities, \$20,725.214	
Capital Stock, - - - - -	\$200,000.00
All other Liabilities, - - - - -	3,733.00
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	\$1,137,983.00

* Reported to Mass. as \$925, Value, \$5,402.40.

REMARKS.

Unrealized Assets included in the Statement.

Deferred Premiums maturing, - - - - -	\$195,000.00
Due from Agents and Premiums unpaid, - - -	68,623.99
Accrued interest, &c., - - - - -	17,136.99
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	\$280,760.98

FRED. SCHWENDLER, *Secretary.* HUGO WESENDOUK, *President.*
Attorney, L. WEITZEL, Hartford.

Statement of the John Hancock Life Insurance Company, Boston, Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$100,000.00
Accumulations and Balances treated as Assets,	-	-	-	424,506.01
Whole amount of Assets,				\$524,506.01

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$4,549.63
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	10,500.00
“ “ Collaterals,	-	-	-	2,600.00
Invested in Bank Stocks,	-	-	-	34,828.00
“ “ State, City, Town and County Securities,	-	-	-	84,000.00
“ “ United States Securities,	-	-	-	134,386.00
“ “ Other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	30,000.00
Commuted Commissions,	“	“	-	
Premium Notes,	“	“	-	129,453.00
Due from Agents, and Premiums due, treated as assets,	-	-	-	26,088.92
Accrued Rents, Interest, &c.,	“	“	-	9,300.00
All other Assets, Bills Receivable,	“	“	-	58,852.93
				\$524,506.01

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$10,500.00
Losses not acted upon,	-	-	-	
Dividends payable,	-	-	-	691.20
Dividends due and unclaimed,	-	-	-	
* Payable ann. to annuitants, \$1,873	Present value,			9,342.00
Insured by the Company, 6,506,450	Present value,			300,000.00
Dividends Added to above,	Present value,			
Gross liabilities,	\$6,508,323			
Capital Stock,	-	-	-	100,000.00
All other Liabilities,	-	-	-	
				\$420,533.20

* Reported to Massachusetts, \$2,666. Value, \$4,940.

REMARKS.

Unrealized Assets, included in the Statement.

Premium Notes,	-	-	-	\$129,453.00
Due from Agents,	-	-	-	26,088.92
				\$155,541.92

GEORGE B. AGER, *Secretary.*
Attorney.

GEO. P. SANGER, *President.*

Statement of the Home Life Insurance Company, Brooklyn, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - - -	\$125,000.00
Accumulations and Balances treated as Assets, -	1,106,678.50

Whole amount of Assets, - - - - \$1,231,678.50

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$49,459.20
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - - -	81,800.00
Loans on Collaterals, - - - -	12,871.69
Invested in Bank Stocks, - - - -	
Invested in State, City, Town and County Securities, -	125,850.00
Invested in United States Securities, - - -	275,727.50
Invested in other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - - -	
Commuted Commissions treated as Assets, -	
Premium Notes treated as Assets, - - - -	566,153.81
Due from Agents, and Premiums due, treated as Assets, -	71,135.20
Accrued Rents, Interest, &c., treated as Assets, -	
All other Assets treated as Assets, - - - -	6,589.00
Loans on Policies, - - - -	42,192.10

\$1,231,678.50

LIABILITIES.

Losses and Claims acknowledged, - - - -	
Dividends payable to same, - - - -	
Losses not acted upon, - - - -	
Dividends payable to same, - - - -	
Dividends due and unclaimed, - - - -	
Payable ann. to annuitants, \$1,145 Present value,	\$8,825.00
Insured by the Company, 17,635,226 Present value,	828,315.00
Dividends added to above, 76,185 Present value,	57,347.00

Gross Liabilities, \$17,712.556

Capital Stock, - - - -	125,000.00
All other Liabilities, - - - -	1,000.00

\$1,020,487.00

REMARKS.

Unrealized Assets included in Statement.

Premium Notes, - - - -	\$566,153.81
Due from Agents and Premiums, - - - -	71,135.20

\$637,289.01

WALTER F. GRIFFITH, *President.*

GEO. C. RIPLEY, *Secretary.*

Attorney, PHILIP POND, New Haven.

*Statement of the Knickerbocker Life Insurance Company, New York,
as condensed from their Reports to January 1, 1867, to the Com-
missioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$100,000.00
Accumulations and Balances treated as Assets, -	1,479,145.88
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Whole amount of Assets, - -	\$1,579,145.88

ASSETS.

Amount of Cash on hand and in Banks,	-	-	\$33,833.08
Real Estate owned by the Company,	-	-	14,000.00
Loans on Real Estate,	-	-	92,170.00
Loans on Collaterals,	-	-	122,208.00
Invested in Bank Stocks,	-	-	23,000.00
Invested in State, City, Town and County Securities,			30,236.92
Invested in United States Securities,	-	-	172,302.97
Invested in other Stocks, Bonds and Securities,	-		12,500.00
Deferred Premiums treated as Assets,	-	-	
Commuted Commissions treated as Assets,	-	-	
Premium Notes treated as Assets,	-	-	580,552.37
Due from Agents, and Premiums, treated as Assets,			332,463.42
Accrued Rents, Interest, &c., treated as Assets,		}	165,879.12
All other Assets treated as Assets,	-		
			<hr/>
			\$1,579,145.88

LIABILITIES.

Losses and Claims acknowledged, - - -	\$7,200.00
Losses not acted upon, - - -	-
Dividends due and unclaimed, - - -	-
Payable ann. to annuitants, Present value, -	-
Insured by the Company, \$21,074,550 Present value, -	1,102,437.92
Dividends added to above, not reported. Present value, -	9,413.40
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Gross Liabilities, - - -	-
Capital Stock, - - -	100,000.00
All other Liabilities, - - -	12,213.12
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	\$1,231,364.44

REMARKS.

Unrealized Assets included in the Statement.

Premium Notes, - - -	\$580,552.37
Due from Agents, and Premiums unpaid, -	332,463.42
All other Assets (suppose not realized), -	165,879.12
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	\$1,078,894.91

GEO. F. GRIFFIN, *Secretary.*ERASTUS LYMAN, *President.**Attorney, J. T. BENTON, Stafford Springs.*

Statement of the Manhattan Life Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$100,000.00
Accumulations and Balances treated as Assets,				3,425,877.64
Whole amount of Assets,				\$3,525,877.64

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$36,512.18
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	546,799.23
Loans on Collaterals,	-	-	-	371,339.68
Invested in Bank Stocks,	-	-	-	12,350.00
Invested in State, City, Town and County Securities,	-	-	-	119,700.00
Invested in United States Securities,	-	-	-	474,398.25
Invested in other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	55,825.08
Commuted Commissions treated as Assets,	-	-	-	70,501.83
Premium Notes treated as Assets,	-	-	-	\$1,376,335.23
Due from Agents, and Premiums due, treated as Assets,	-	-	-	443,004.33
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	19,101.91
All other Assets treated as Assets,	-	-	-	
				\$3,525,877.64

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$88,000.00
Losses not acted upon,	-	-	-	44,000.00
Dividends due and unclaimed,	-	-	-	
Payable ann. to annuitants,	\$ 641.30	Present value,		5,000.00
Insured by the Company,	36,459,265.00	Present value,		2,151,245.45
Dividends added to above,	107,937.00	Present value,		67,485.29

Gross Liabilities, \$36,567,843.30

Capital Stock,	-	-	-	-	100,000.00
All other Liabilities,	-	-	-	-	1,241.30
					\$2,466,972.04

REMARKS.

Unrealized Assets included in the Statement.

Premium Notes,	-	-	-	-	\$1,376,335.23
Commuted Commissions,	-	-	-	-	70,501.83
Deferred Premiums,	-	-	-	-	55,825.08
Due from Agents, and Premiums unpaid,	-	-	-	-	443,004.33
					\$1,945,666.47

J. L. HALSEY, *Secretary.*

HENRY STOKES, *President.*

Attorney, GEO. S. LESTER, New Haven.

*Statement of the Massachusetts Mutual Life Insurance Company,
Springfield, Mass., as condensed from their Reports to January 1,
1867, to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$100,000.00
Accumulations and Balances treated as Assets, -	1,409,585.48
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Whole amount of Assets, - - -	\$1,509,585.48

ASSETS.

Amount of Cash on hand and in Banks, - -	16,217.30
Real Estate owned by the Company, - -	56,076.50
Loans on Real Estate, - - -	497,916.00
Loans on Collaterals, - - -	95,000.60
Invested in Bank Stocks, - - -	30,624.00
Invested in State, City, Town and County Securities, -	22,100.00
Invested in United States Securities, - -	178,783.75
Invested in other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - -	
Commuted Commissions treated as Assets, - -	
Premium Notes treated as Assets, - - -	468,741.02
Due from Agents, and Premiums due, treated as Assets, -	85,628.48
Accrued Rents, Interest, &c., treated as Assets, -	30,410.33
All other Assets in Personal Securities, - -	28,087.50
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	\$1,509,585.48

LIABILITIES.

Losses and Claims acknowledged, - - -	22,500.00
Losses not acted upon, - - -	
Dividends payable, - - -	1,814.57
Dividends due and unclaimed, - - -	
Payable ann. to annuitants, Present value,	
Insured by the Company, \$20,448,200 Present value,	1,085,922.68
Dividends added to above, not reported. Present value,	3,676.47
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Gross Liabilities, \$20,448.200	
Capital Stock, - - -	100,000.00
All other Liabilities, - - -	
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	\$1,213,913.62

REMARKS.

Unrealized Assets included in the Statement.

Premium Notes, - - -	\$468,741.02
Due from Agents, - - -	85,628.48
Rents and accrued Interest, - - -	30,410.33
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	\$584,779.83

MOSES L. HALE, *Secretary.*

GEO. W. LYMAN, *President.*

Attorney, C. C. KIMBALL, Hartford.

Statement of the Mutual Benefit Life Insurance Company, Newark, N. J., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.			
Amount of Capital paid in,	-	-	None.
Accumulations and Balances treated as Assets,			\$11,627,984.73
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Whole amount of Assets,	-	-	\$11,627,984.73
ASSETS.			
Amount of Cash on hand and in Banks,	-	-	\$371,407.09
Real Estate owned by the Company,	-	-	92,932.77
Loans on Real Estate,	-	-	2,268,441.40
Loans on Collaterals,	-	-	
Invested in Railroad Bonds,	-	-	34,000.00
Invested in State, City, Town and County Securities,			300,800.00
Invested in United States Securities,	-	-	1,551,400.00
Invested in Other Stocks, Bonds and Securities,			2,243,942.82
Deferred Premiums treated as Assets,	-	-	350,000.00
Commuted Commissions, treated as assets,	-	-	
Premium Notes, treated as assets,	-	-	4,121,241.35
Due from Agents, and Premiums due, treated as assets,			25,319.45
Accrued Rents, Interest, &c., treated as assets,			265,517.29
All other Assets, treated as assets,	-	-	2,982.56
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			\$11,627,984.73
LIABILITIES.			
Losses and Claims acknowledged,	-	-	} \$185,300.00
Losses not acted upon,	-	-	
Dividends due and unclaimed,	-	-	97,557.37
* Payable ann. to annuitants,	382	Present value,	2,732.30
Insured by the Company,	\$92,859,019	Present value,	6,916,737.80
Dividends added to above,	1,659,756	Present value,	1,545,354.00
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Gross liabilities,	\$94,519,157		
Capital Stock,	-	-	-
All other Liabilities,	-	-	-
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			\$8,562,680.47

* Reported to Massachusetts, \$1,517.00. Value, \$5,891.70.

REMARKS.

Unrealized Assets, included in Statement.

Deferred Premiums,	-	-	-	\$350,000.00
Premium Notes, -	-	-	-	4,121,241.35
Due from Agents, -	-	-	-	25,319.45
Accrued Interest, &c., -	-	-	-	265,517.29
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\$4,762,078.09

EDWARD A. STRONG, *Secretary.* LEWIS C. GROVER, *President.*
Attorney, LEVI C. GILBERT, New Haven.

Statement of the Mutual Life Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	None.
Accumulations and Balances treated as Assets,	-	-	-	\$18,495,507.55

Whole amount of Assets,	-	-	-	\$18,495,507.55
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ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$1,897,549.60
Real Estate owned by the Company,	-	-	-	941,365.71
Loans on Real Estate,	-	-	-	9,572,352.60
Loans on Collaterals,	-	-	-	-
Invested in Bank Stocks,	-	-	-	-
Invested in State, City, Town and County Securities,	-	-	-	525,000.00
Invested in United States Securities,	-	-	-	4,399,030.20
Invested in Other Stocks, Bonds and Securities,	-	-	-	-
Deferred Premiums treated as assets,	-	-	-	750,000.00
Commuted Commissions, treated as assets,	-	-	-	-
Premium Notes, treated as assets,	-	-	-	-
Due from Agents, and Premiums due, treated as assets,	-	-	-	220,355.88
Accrued Rents, Interest, &c., treated as assets,	-	-	-	-
All other Assets, treated as assets,	-	-	-	189,843.56

\$18,495,507.55

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$154,000.00
Dividends payable to same,	-	-	-	33,848.00
Losses not acted upon,	-	-	-	-
Dividends due and unclaimed,	-	-	-	43,824.85
* Payable ann. to annuitants, \$11,502 Present value,	-	-	-	84,904.28
Insured by the Company, 120,267,538 Present value,	-	-	-	10,324,280.49
Dividends added to above, 12,587,851 Present value,	-	-	-	5,983,706.36

Gross liabilities, \$132,866,941

Capital Stock,	-	-	-	-
All other liabilities,	-	-	-	-
Premiums paid in advance,	-	-	-	39,551.37

\$16,664,115.35

* Returned to Massachusetts, \$29,550. Value, \$57,627.63.

REMARKS.

Unrealized Assets, included in the Statement.

Deferred Premiums Maturing,	-	-	-	\$750,000.00
Due from Agents and for Premiums,	-	-	-	220,355.88
Accrued Interest,	-	-	-	189,843.56

\$1,160,199.44

J. M. STUART, *Secretary.*

F. S. WINSTON, *President.*

Attorney, H. P. HOADLEY, New Haven.

Statement of the National Life Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$130,000.00
Accumulations and Balances treated as Assets,	60,626.76
<hr/>	
Whole amount of Assets, - - -	\$190,626.76

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$3,914.45
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - -	
Loans on Collaterals, - - -	
Invested in Bank Stocks, - - -	
Invested in State, City, Town and County Securities,	
Invested in United States Securities, - - -	106,250.00
Invested in Other Stocks, Bonds and Securities,	
Deferred Premiums treated as Assets, - - -	12,246.48
Commuted Commissions treated as Assets, - - -	
Premium Notes treated as Assets, - - -	28,172.03
Due from Agents, and Premiums due, treated as Assets,	35,123.80
Accrued Rents, Interest, &c., treated as Assets, - - -	2,320.00
All other Assets, treated as Assets, - - -	2,600.00
<hr/>	
	\$190,626.76

LIABILITIES.

Losses and Claims acknowledged, - - -	\$5,000.00
Losses not acted upon, - - -	
Dividends due and unclaimed, - - -	
Payable ann. to annuitants, Present value,	
Insured by the Company, \$2,154,700 Present value,	55,485.19
Dividends added to above, Present value,	
<hr/>	
Gross liabilities, \$2,154.700	
Capital Stock, - - -	\$130,000.00
All other Liabilities, - - -	1,000.00
<hr/>	
	\$191,485.19

REMARKS.

Unrealized Assets, included in the Statement.

Deferred Premiums, - - -	\$12,246.48
Premium Notes, - - -	28,172.03
Due from Agents, - - -	35,123.80
Accrued Rents, &c., - - -	4,920.00
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	\$80,462.31

JNO. A. MORTIMORE, *Secretary.*EDW. A. JONES, *President.**Attorney, P. D. WHITMORE, Hartford.*

Statement of the National Travelers Life Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	47,300.74

Whole amount of Assets, - - -	\$247,300.74
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ASSETS.

Amount of Cash on hand and in Banks, - -	9,885.92
Real Estate owned by the Company, - -	
Loans on Real Estate, - - - -	
Loans on Collaterals, - - - -	2,882.73
Invested in Bank Stocks, - - - -	
Invested in State, City, Town and County Securities,	
Invested in United States Securities, - -	204,562.50
Invested in Other Stocks, Bonds and Securities,	
Deferred Premiums treated as Assets, - -	5,032.38
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets,	2,962.36
Accrued Rents, Interest, &c., treated as Assets, -	1,008.78
All other Assets, treated as Assets, - - -	20,966.07

\$247,300.74

LIABILITIES.

Losses and Claims acknowledged, - -	
Losses not acted upon, - - - -	
Dividends due and unclaimed, - - - -	
Payable ann. to annuitants, Present value,	
Insured by the Company, \$1,299,700 Present value,	\$41,330.42
Dividends added to above, Present value,	

Gross Liabilities, \$1,299,700

Capital Stock, - - - -	200,000.00
All other Liabilities, - - - -	1,512.49

\$242,842.91

Just commencing the Life Insurance business.

REMARKS.

Unrealized Assets, included in the Statement.

Deferred Accidents Insurance Premiums, - -	\$5,032.28
Due from Agents, - - - -	2,962.36
Accrued Interest and other Assets, - - -	21,974.85

\$29,979.59

E. H. JONES, *Secretary.*

JAS. R. DOW, *President.*

Attorney, P. D. WHITMORE, Hartford.

Statement of the New England Mutual Life Insurance Company, Boston, Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	None.
Accumulations and Balances treated as Assets, -	\$4,904,893.00
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Whole amount of Assets, - - -	\$4,904,893.00

ASSETS.

Amount of Cash on hand and in Banks,	-	-	\$377,334.00
Real Estate owned by the Company,	-	-	235,000.00
Loans on Real Estate,	-	-	869,763.00
Loans on Collaterals,	-	-	60,517.00
Invested in Bank Stocks,	-	-	167,000.00
Invested in State, City, Town and County Securities,			949,395.00
Invested in United States Securities,	-	-	456,500.00
Invested in Other Stocks, Bonds and Securities,			224,045.00
Deferred Premiums treated as Assets,	-	-	
Commuted Commissions, treated as Assets,		-	
Premium Notes, treated as Assets,	-	-	1,538,339.00
Due from Agents, and Premiums due, treated as Assets,			
Accrued Rents, Interest, &c., treated as Assets,		-	} 27,000.00
All other assets, treated as Assets,	-	-	
			<hr/>
			\$4,904,893.00

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses not acted upon, - - -	\$38,600.00
Dividends due and unclaimed, - - -	
Payable ann. to annuitants, - - -	Present value,
Insured by the Company, \$43,126,730	Present value, 3,385,860.00
Dividends Added to above, 710,331	Present value, not reported.
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Gross liabilities, \$43,837,061	
Capital Stock, - - -	
All other Liabilities, say for Dividends, - - -	500,000.00
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	\$3,924,460.00

REMARKS.

Unrealized Assets, included in the Statement.

Premium Notes, - - -	\$1,538,339.00
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	\$1,538,339.00

JOS. M. GIBBENS, *Secretary.* BENJ. F. STEVENS, *President.*
Attorney, CHARLES ROBINSON, New Haven.

Statement of the New York Life Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	None.
Accumulations and Balances treated as Assets, -	\$7,009,092.25
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Whole amount of Assets, - -	\$7,009,092.25

ASSETS.

Amount of Cash on hand and in Banks, -	\$532,154.79
Real Estate owned by the Company, - -	225,000.00
Loans on Real Estate, - - - -	402,450.00
Loans on Collaterals, - - - -	344,600.00
Invested in Bank Stocks, - - - -	57,518.00
Invested in State, City, Town and County Securities, -	855,890.00
Invested in United States Securities, - -	2,523,753.25
Invested in Other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - -	336,438.89
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - -	1,384,821.40
Due from Agents, and Premiums due, treated as Assets, -	289,745.35
Accrued Rents, Interest, &c., treated as Assets, -	56,620.57
All other Assets, treated as Assets, - -	
<hr/>	
	\$7,009,092.25

LIABILITIES.

Losses and Claims acknowledged, - - -	\$64,291.45
Losses not acted upon, - - - -	37,500.00
Amount of Dividends, - - - -	86,985.57
Payable ann. to annuitants, \$1,616 Present value, -	13,000.00
Insured by the Company, 60,430,357 Present value, -	4,000,000.00
Dividends added to above, 888,517 Present value, -	854,856.38
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Gross liabilities, \$61,320,490.	
Capital Stock, - - - -	
All other Liabilities, - - - -	
<hr/>	
	\$5,056,633.40

REMARKS.

Unrealized Assets, included in the Statement.

Deferred Premiums Maturing, - - -	\$336,438.89
Due from Agents and others, - - -	289,745.35
Premium Notes, - - - -	1,384,821.40
Accrued Interest and Rents, - - - -	56,620.57
<hr/>	
	\$2,067,626.21

WM. H. BEERS, *Secretary.*MORRIS FRANKLIN, *President.*

Attorney, IRA SHERMAN, Bridgeport.

*Statement of the New York Accidental Insurance Company, N. Y.,
as condensed from their Reports to January 1, 1867, to the Com-
missioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$250,000.00
Accumulations and Balances treated as Assets, -	35,878.27
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Whole amount of Assets, - - -	\$285,878.27

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$15,906.48
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - - - -	
Loans on Collaterals, - - - - -	
Invested in Bank Stocks, - - - - -	
Invested in State, City, Town and County Securities,	
Invested in United States Securities, - - -	262,875.00
Invested in Other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - - -	
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets,	2,712.29
Accrued Rents, Interest, &c., - - - - -	480.00
All other Assets, - - - - -	904.50
Furniture, &c., - - - - -	3,000.00
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	\$285,878.27

LIABILITIES.

Losses and Claims acknowledged, - - -	\$4,000.00
Losses not acted upon, - - - - -	
Amount of Dividends due and unclaimed, -	
Payable ann. to annuitants, \$	Present value, \$
Insured by the Company,	Present value,
Dividends added to above,	Present value,
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Gross Liabilities, \$	
Capital Stock, - - - - -	\$250.000
All other Liabilities, - - - - -	
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	\$254.000

Company newly organized.

REMARKS.

EDWARD GREENE, *Secretary.* WM. A. BAILEY, *President.*
Attorney, HORACE P. HOADLEY, New Haven.

Statement of the New York State Life Insurance Company, Syracuse, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$120,000.00
Accumulations and Balances treated as Assets,	-	-	-	34,438.77
Whole amount of Assets,	-	-	-	\$154,438.77

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	3,163.99
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	17,800.00
Loans on Collaterals,	-	-	-	
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	110,475.00
Invested in Other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions, treated as Assets,	-	-	-	
Premium Notes, treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	-	9,483.28
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	
All other Assets,	-	-	-	13,516.50
				\$154,438.77

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses not acted upon,	-	-	-	
Amount of Dividends due and unclaimed,	-	-	-	
Payable ann. to annu'ts,				Present value,
Insured by the Company,	\$1,249,500			Present value,
Dividends added to above,				Present value,
Gross Liabilities,				
Capital Stock,	-	-	-	\$120,000.00
All other Liabilities,	-	-	-	996.77
				\$130,996.77

Company newly organized.

REMARKS.

Unrealized Assets included in the Statement.

Due from Agents,	-	-	-	\$9,483.28
All other Assets, not realized,	-	-	-	13,516.50
				\$22,999.78

GEO. J. GARDNER, *Secretary.*JOHN J. PECK, *President.**Attorney, JAS. L. GREEN, Norwich.*

Statement of the North American Life Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$100,000.00
Accumulations and Balances treated as Assets,	-	-	-	1,466,405.82
Whole amount of Assets,				\$1,566,405.82

ASSETS.

Amount of Cash on Hand and in Banks,	-	-	-	36,872.56
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	
Loans on Collaterals,	-	-	-	
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,				12,550.00
Invested in United States Securities,	-	-	-	428,311.00
Invested in Other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	314,573.44
Commuted Commissions, treated as Assets,	-	-	-	144,326.65
Premium Notes, treated as Assets,	-	-	-	454,061.38
Due from Agents, and Premiums due, treated as Assets,				165,710.79
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	10,000.00
All other Assets, treated as Assets,	-	-	-	
				\$1,566,405.82

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	} 47,500.00
Losses not acted upon,	-	-	-	
Amount of Dividend due and unclaimed,	-	-	-	
Payable ann. to annuitants,	\$1,000	Present value,		\$9,199.00
Insured by the Company,	18,459.992	Present value,		914,899.80
Dividends added to above,		Present value,		
Gross Liabilities,	\$18,460.992			
Capital Stock,	-	-	-	\$100,000.00
All other Liabilities,	-	-	-	
				\$1,071,595.80

REMARKS.

Unrealized Assets included in the Statement.

Deferred Premiums,	-	-	-	\$314,573.44
Commuted Commissions,	-	-	-	144,326.65
Premium Notes,	-	-	-	454,061.38
Accrued Interest,	-	-	-	10,000.00
				\$922,961.47

D. M. MERRILL, *Secretary.*N. D. MORGAN, *President.**Attorney, JOEL HALKINS, New Haven.*

Statement of the State Mutual Life Insurance Company, Worcester, Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	none.
Accumulations and Balances treated as Assets, -	\$735,125.70
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Whole amount of Assets, - - -	\$735,125.70

ASSETS.

Amount of Cash on hand and in Banks,	-	-	\$10,165.37
Real Estate owned by the Company,	-	-	25,606.46
Loans on Real Estate,	-	-	80,825.00
Loans on Collaterals,	-	-	45,000.00
Invested in Bank Stocks,	-	-	114,963.00
Invested in State, City, Town and County Securities,	-	-	207,025.00
Invested in United States Securities,	-	-	202,070.54
Invested in other Stocks, Bonds and Securities,	-	-	9,558.50
Deferred Premiums treated as Assets,	-	-	
Commuted Commissions treated as Assets,	-	-	
Premium Notes treated as Assets,	-	-	10,428.76
Due from Agents, and Premiums, treated as Assets,			9,483.07
Accrued Rents, Interest, &c., treated as Assets,		}	15,000.00
All other Assets treated as Assets,	-		
			<hr/>
			\$735,125.70

LIABILITIES.

Losses and Claims acknowledged, - - -	\$8,000.00
Losses not acted upon, - - - -	
Dividends due and unclaimed, - - - -	4,330.12
Payable ann. to annuitants, Present value,	
Insured by the Company, \$4,219,811 Present value,	615,314.22
Dividends added to above, 219,328 Present value,	

Gross Liabilities, \$4,439.139

Capital Stock, - - - -	none.
All other Liabilities, Dividends estimated worth -	150,000.00
<hr/>	
	\$787,644.34

REMARKS.

Unrealized Assets included in the Statement.

Premium Notes, - - - -	\$10,428.76
Due from Agents, - - - -	9,483.07
Accrued Interest, - - - -	15,000.00
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	\$34,911.83

CLARENDON HARRIS, *Secretary.*
Attorney,

ISAAC DAVIS, *President.*

Statement of the Universal Life Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$200,000.00
Accumulations and Balances treated as Assets,				114,029.22
Whole amount of Assets,				\$314,029.22

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$143,325.85
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	
Loans on Collaterals,	-	-	-	
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	105,375.00
Invested in other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	35,299.47
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,				22,301.56
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	2,934.38
All other Assets treated as Assets,	-	-	-	4,792.96
				\$314,029.22

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$5,000.00
Losses not acted upon,	-	-	-	
Dividends due and unclaimed,	-	-	-	
Payable ann. to annuitants,	none.	Present value,		
Insured by the Company,	\$5,360,290	Present value,		55,000.00
Dividends added to above,	none.	Present value,		
Gross Liabilities,	\$5,360,290			
Capital Stock,	-	-	-	200,000.00
All other Liabilities,	-	-	-	
				\$260,000.00

REMARKS.

Unrealized Assets included in the Statement.

Deferred Premiums maturing,	-	-	-	\$35,299.47
Due from Agents, and others,	-	-	-	22,301.56
Accrued Interest,	-	-	-	2,934.38
				\$60,535.41

JOHN H. BEWLEY, *Secretary.* WILLIAM WALKER, *President.*
Attorney, E. W. BROWN, New Haven.

Statement of the World's Mutual Life Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	13,668.55
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Whole amount of Assets, - - - -	\$213,668.55

ASSETS.

Amount of Cash on hand and in Banks, - -	\$7,770.88
Real Estate owned by the Company, - -	
Loans on Real Estate, - - - -	
Loans on Collaterals, - - - -	814.19
Invested in Bank Stocks, - - - -	
Invested in State, City, Town and County Securities, -	
Invested in United States Securities, - -	200,095.62
Invested in other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - -	1,484.71
Commuted Commissions treated as Assets, -	
Premium Notes treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets, -	3,377.83
Accrued Rents, Interest, &c., treated as Assets, -	
All other Assets treated as Assets, - -	125.32
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	\$213,668.55

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses not acted upon, - - - -	
Dividends due and unclaimed, - - - -	
Payable ann. to annuitants, - - - -	Present value,
Insured by the Company, - - - -	Present value,
Dividends added to above, - - - -	Present value,

Gross Liabilities,

Capital Stock, - - - - -	\$200,000.00
All other Liabilities, - - - - -	645.62
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Recently organized.

\$200,645.62

REMARKS.

Unrealized Assets included in Statement.

Deferred Premiums, - - - -	\$1,484.71
Premium Notes, - - - -	814.19
Due from Agents, - - - -	3,377.83
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	\$5,676.73

CHAS. W. PLYER, *Secretary.* GEO. L. WILLARD, *President.*
Attorney, S. B. MORGAN, *West Meriden.*

FIRE INSURANCE COMPANIES.

The following condensed statements of the condition of the Fire and Marine Insurance Companies of other states, doing business in this State, shows that there is a very reliable class of Institutions seeking patronage in this State.

The disasters of 1866 it appears made serious inroads upon their incomes, and should the unearned premiums be estimated and deducted from their assets, the effect of the year would be still more apparent.

In Fire Insurance the business is more under control, than in Life Insurance, for the risks are of short duration and may be reduced. Premiums may be raised, and the renewals of hazardous risks be declined.

The excessive losses incurred, may to some extent be explained. Incendiaries have applied the torch. Carelessness has followed broken down establishments. And last, though not least, there is apparently a great defect in the Fire Department in large Cities and manufacturing towns.

Even in the City of New York, the Fire Department is very defective, for during the last year, the heaviest losses have been made upon what have been termed *their best risks*. Risks which under no circumstances were regarded as capable of being turned into *total losses*.

It is evident that any Fire Department which fails to get water upon a fire, within a very short time after discovery, is imperfect, for it permits a fire to get under headway and heavy losses follow.

The deficiency of head at the Croton Reservoir creates a deficiency of power to the fire hydrants, so that for the most part the hydrants are useless until a steamer arrives. This accounts for the omission to locate over the City a sufficient number of hose carriages of a size easily handled by private watchmen or members of the Police Department.

It is also very rare indeed that the main pipes of any water

company, public or private, are large enough to make the power of the water as available as it might be.

Drawing from too small main pipes supplied by a moderate head, reduces the power of the water so rapidly, that in many sections of Cities like Boston and New York and even smaller places, the flow of water is without sufficient power, so that for fire purposes hydrants are of little or no use until after a steam fire-engine has arrived and is attached to them.

This defect exists in almost every city into which water has been introduced and cannot be remedied except by acquiring higher sources of supply or by introducing larger main supply pipes.

Besides this, the excessive number of large fires, destroying the most densely built parts of manufacturing villages (like the recent fire at Tariffville, which laid the manufacturing establishments in ruins and virtually destroyed the town) directs the mind of the Insurer to seek for some source of protection or to ask if there is no remedy for such conflagrations and such utter annihilation of property.

Manufacturing villages are rarely located on high grounds, for they seek water in vallies and forget that the surrounding highlands in almost every case, afford small streams which instead of flowing down to the vallies uninterrupted, may be checked by dams, and water thereby impounded and held in reserve at an elevation to afford a head sufficient to make fire hydrants in the Cities or the Factory Villages equal in power to steam fire engines.

This could have been done and with comparatively small cost at Tariffville and the place saved from being destroyed.

Your Commissioner regards these considerations as not out of place in this report, for it is as much the duty of an Insurance Commissioner to examine into the causes of disaster to Insurance Companies outside of their offices, as it is to interpose his authority over the details of their business.

It appears that 48 Companies doing business in this State report losses paid in 1866 amounting to, say, \$15,000,000.00.

Their total receipts were \$20,000,000.00, in which receipts are included the interest on almost \$23,000,000 of capital.

They are now rapidly recovering from the reverses of last year, and should Towns and Cities improve their Fire Departments by the addition of powerful water works, so that Fire Hydrants shall equal in power steam Fire Engines, then large fires and total losses would be diminished, premiums would be reduced, and dividends would be increased.

MARINE INSURANCE COMPANIES.

In regard to the Marine Insurance Companies, disasters have been great owing in part to their neglect to enforce rules which would provide the necessary equipments and a sufficient number of men to work and protect the vessels they insure.

It is very necessary to test the condition of the hulls and timbers of vessels to ascertain if they are sound, and to cause machinery and boilers to be examined, to test their qualities. And it is equally necessary to know that a vessel on going to sea carries the necessary equipments and a sufficient number of the various kinds of hands to work and care for the ship and repair damages.

Great praise and credit is due to the officers of Fire, and Fire and Marine Insurance Companies for the manner in which they have sustained their Institutions during the last two years, for without the utmost perseverance and energy, their misfortunes would have overcome their receipts, capitals and savings ; and in the main well managed Institutions would have passed over into the hands of receivers, a misfortune, pretty sure, like a fire, to leave nothing but ashes behind.

There is but little to comment upon in regard to the management of Insurance Companies. For as a general thing their officers are able, careful and faithful men.

So far as exceptions occur they originate with attempts to evade wholesome laws and should be treated accordingly.

As a matter of course there is great competition and a great variety of plans in vogue in every branch of the business, but after all, if they are carefully examined they will prove to be not unlike in their results to the Insurers and the

Insured. In Life Insurance it is not much unlike the various routes from New York to Boston. They start about the same time, travel over about the same space, arrive about the same time, and cost the traveler about the same amount of money.

REVENUE TO THE STATE.

The report of the State Treasurer exhibits the receipts for Taxes and Licenses derived from Insurance Companies and their agents, through the agency of this Department. The amount is \$7,669.94 and it has been collected without cost to the State. It is believed that this source of revenue is fully realized, and that the Agents of Insurance Companies have not evaded the law in this respect.

It is a question for the Legislature to settle, whether this Revenue is on the whole an advantage, owing to the fact, that the levying of a 2 per cent tax absolutely on all Fire Insurance premiums collected in this State, by the agents of companies admitted from other States, compels the collection of the same per cent. of tax in such States, on the local premiums collected by the companies of this State, and it happens that the insurance companies of this State pay to such States, more than twice as much as is collected by this State of the outside companies.

As the State needs all legitimate sources of income, the present levy should be continued—or, if it operates as an oppression upon the companies of this State, for the reason above stated, a small increase of the tax on the capitals of the fire insurance companies would produce the same income to the State, and no doubt prove a saving of as much more to the companies of this State doing business in other States. In this view, the law could be modified as it was in Life Insurance, and be made reciprocal in its operation.

Your Commissioner has deemed it to be his duty to present this matter to the Legislature, because it is complained of by the insurance companies of this State, and they may wish to be heard in the premises.

The receipts of the Department for the last year, ending January 1, 1867, have been eleven hundred and fifty-five dol-

lars, from which has been paid for an assistant, printing, stationery, postage, express, telegraphs, travel, and government stamps, eight hundred and thirty-eight dollars and fifty-five cents.

The income is derived principally from the State of New-York, owing to the fact that in almost every other State, no fees are charged for services and duties performed by the Commissioner. If charges or fees were exacted by your Commissioner in such cases, the officials of these States would retaliate upon the companies of this State. Rather than this, your Commissioner has performed duties, furnished blanks and government stamps, and paid postage, and made no charges. This practice will be continued, while the laws and the practice remain unchanged.

Your Commissioner omits discussing the various schemes of insurance, because it is not the business of such an officer, especially if he admits into the State only such Companies as are deemed of a safe and solvent character,—besides, there has been already written and published by others on this subject, more than the public care to read.

CONCLUSION.

Thus far your Commissioner has had occasion to revoke his certificate to the agent of but one company admitted into the State, and that, The Provident Life Insurance and Investment Company, of Chicago, Illinois.

The statement under oath, on which they were admitted, as of January 1, 1866, showed that the capital actually paid in, was \$229,250.00, and that their assests amounted to \$221,583.29. This exhibit left \$7,666.71 as unaccounted for, which your Commissioner assumed had been used in printing, stationery, rent, &c., as the expenses of commencing the business.

On the 1st of October it was asked to report again its standing. They were prompt to do so, and completed the blanks sent, showing their affairs on the 1st day of July.

This exhibit showed "capital actually paid in, \$100.000—having, as it then appeared, reduced their capital in six months \$129,250—which reduction was not explained.

Their schedule of assets, showed among other items, cash on hand \$27,400.00 and \$196,000 in United States bonds. The total assets amounted to \$259,123.16.

According to this the company had retired \$129.250 of their capital, and had *accumulated* \$159,123.16 during the six months.

Another statement was required, to show the standing of the company December 31, 1866. This statement was also promptly made, and sworn to, January 8, 1867, by the President and Secretary, and showed "amount of capital actually paid in, \$183,850.00, and assets amounting to \$185,637.08"—virtually showing that the accumulation indicated by the previous schedule of \$159,123.16, had become reduced to \$1,787.08—and their capital increased from \$100,000 to \$183,850.

Being unable to harmonize these various statements, your Commissioner sent the last one out to a Commissioner of the State of Connecticut, residing in the city of Chicago, with a duplicate blank, and directions to obtain "a list of the specific securities held for the paid up capital of \$183,850 as it stood on the *31st day of December, 1866,*" &c. &c.

Instead of following the instructions, the Commissioner, in his own form, returned a manuscript statement of the condition of the company on the *15th day of May, 1867*—in which exhibit, *no mention is made of capital at all*—but gives a list of "Assets," amounting to \$217,985.71, of which \$56,100 appeared to be invested in furniture, supplies, &c., "necessary in prosecuting the business."

After receiving the last papers, and examining them, and all of the returns in the possession of the Department, your Commissioner deemed it necessary to withdraw the certificate of authority for the company to transact business in this State, and did so, because their statements were unsatisfactory. Since then the company have said they would not pursue their business in this State, until their statements were satisfactory. The necessity for this action was regretted, but under the circumstances, became a duty.

This report has been delayed, owing to the labor of perfecting the statements of the companies.

STATEMENT OF THE CONDITION
OF THE
FIRE INSURANCE COMPANIES
FROM OTHER STATES,
TRANSACTIONING BUSINESS IN THE STATE OF
CONNECTICUT.

*Statement of the American Exchange Fire Insurance Company,
N. Y., as condensed from their Reports to January 1, 1867, to the
Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	49,581.25
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Whole amount of Assets, - - -	\$249,581.25

ASSETS.

Amount of Cash on hand and in Banks, -	-	\$1,735.07
Lease of Real Estate owned by the Company, -	-	10,000.00
Loans on Real Estate, - - - -	-	77,300.00
Loans on Collaterals, - - - -	-	88,150.00
Invested in Bank Stocks, - - - -	-	
Invested in State, City, Town and County Securities,		
Invested in United States Securities, - -	-	53,875.00
Invested in Other Stocks, Bonds and Securities, -	-	
Deferred Premiums treated as Assets, - -	-	
Commuted Commissions, treated as Assets, -	-	
Premium Notes, treated as Assets, - - - -	-	
Due from Agents, and Premiums due, treated as Assets,		311.21
Accrued Rents, Interest, &c., treated as Assets, -	-	} 18,209.97
All other Assets, including Salvage, - - - -	-	
		<hr/>
		\$249,581.25

LIABILITIES.

Losses and Claims acknowledged, - - -	\$525.00
Losses and Claims unadjusted, - - - -	75.00
Losses not acted upon, - - - -	2,716.66
Dividends payable, - - - -	535.00
Capital Stock, - - - -	200,000.00
All other Liabilities, - - - -	
<hr/>	
Gross Liabilities, - - - -	\$203,851.66

REMARKS.

Amount of Losses paid in 1866, - - -	\$29,687.00
Received for Premiums, in 1866, - - -	\$67,165.00

WILLIAM RAYNOR, *Secretary.*

HENRY BUTLER, *President.*

Attorney, LEVI C. GILBERT, New Haven.

*Statement of the Albany City Fire Insurance Company, Albany, N. Y.,
as condensed from their Reports to January 1, 1867, to the Com-
missioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	8,501.75
	<hr/>
	\$208,501.75

ASSETS.

Amount of Cash on hand and in Bank, - - -	\$59,949.89
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - - -	117,531.71
Loans on Collaterals, - - - -	
Invested in Bank Stocks, - - - -	
Invested in State, City, Town and County Securities,	
Invested in United States Securities, - - -	
Invested in Other Stocks, Bonds and Securities, -	4,000.00
Deferred Premiums treated as Assets, - - -	
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - - -	
Due from Agents, and Premiums due, treated as Assets,	16,185.38
Accrued Rents, Interest, &c., treated as Assets, -	3,048.31
All other Assets, treated as Assets, - - - -	7,786.46
	<hr/>
	\$208,501.75

LIABILITIES.

Losses and Claims acknowledged, - - - -	\$8,299.89
Losses and Claims resisted, - - - - -	
Losses not acted upon, - - - - -	21,605.59
Dividends payable, - - - - -	
Capital Stock, - - - - -	200,000.00
All other Liabilities, - - - - -	8,484.71
	<hr/>
Gross Liabilities, - - - - -	\$238,390.19

REMARKS.

Amount of Losses paid in 1866, - - - -	\$299,889.34
Amount at Risk, - - - - -	14,530.00
Received for Premiums in 1866, - - - -	223,826.00

WM. A. YOUNG, *Secretary.* JAMES HENDRICK, *Vice President.*
Attorney, C. C. KIMBALL, Hartford.

*Statement of the American Fire Insurance Company, Providence, R. I.,
as condensed from their Reports to January 1, 1867, to the Com-
missioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$150,000.00
Accumulations and Balances treated as Assets, -	94,688.21
Whole amount of Assets, - - -	<u>\$244,688.21</u>

ASSETS.

Amount of Cash on hand and in Banks, - -	\$6,680.12
Real Estate owned by the Company, - -	
Loans on Real Estate, - - -	
Loans on Collaterals, - - -	
Invested in Bank Stocks, - - -	207,234.00
Invested in State, City, Town and County Securities, - -	
Invested in United States Securities, - -	
Invested in other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - -	
Commuted Commissions treated as Assets, - -	
Premium Notes treated as Assets, - - -	14,628.35
Due from Agents, and Premiums due, treated as Assets, -	12,345.74
Accrued Rents, Interest, &c., treated as Assets, -	
All other Assets, in Personal Securities, - -	3,800.00
	<u>\$244,688.21</u>

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	\$7,600.00
Dividends payable, - - -	1,469.00
Capital Stock, - - -	150,000.00
All other Liabilities, including Bank discounts and Bills payable for Re-Insurance, - - -	36,589.42
Gross Liabilities, - - -	<u>\$195,658.42</u>

REMARKS.

Amount of Losses paid in 1866, - - -	\$85,541.95
Amount at Risk, - - -	\$6,300,000.00

W. W. ARNOLD, *Assistant Secretary.* I. H. DEWOLFE, *President.*
Attorney, J. M. GOODWIN, Hartford.

*Statement of the Atlantic Fire Insurance Company, Brooklyn, N. Y.,
as condensed from their Reports to January 1, 1867, to the Commis-
sioner of Insurance.*

CAPITAL.

Amount of Capital paid in,	-	-	-	\$300,000.00
Accumulations and Balances treated as Assets,	-	-	-	196,468.09
Whole amount of Assets,				\$496,468.09

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$12,689.72
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	54,550.00
Loans on Collaterals,	-	-	-	32,728.75
Invested in Bank Stocks,	-	-	-	29,135.00
Invested in State, City, Town and County Securities,	-	-	-	34,360.49
Invested in United States Securities,	-	-	-	285,575.00
Invested in other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	-	18,957.44
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	28,471.68
All other Assets, including Office Furniture,	-	-	-	
				\$496,468.09

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	\$33,789.93
Dividends payable,	-	-	-	
Capital Stock,	-	-	-	300,000.00
All other Liabilities,	-	-	-	
Gross Liabilities,				\$333,789.93

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$190,524.11
Amount at Risk, -	-	-	-	\$27,276,000.00
Received for Premiums in 1866,	-	-	-	312,541.00

HORATIO DORR, *Secretary.*

JOHN D. COCKS, *President.*

Attorney, JUDAH FRISBIE, New Haven.

*Statement of the Atlantic Fire and Marine Insurance Company,
Providence, R. I., as condensed from their Reports to January 1,
1867, to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	-	\$200,000.00
Accumulations and Balances treated as Assets, -		77,441.84
		<hr/>
Whole amount of Assets, - - -	-	\$277,441.84

ASSETS.

Amount of Cash on hand and in Banks, - - -	-	\$6,866.10
Real Estate owned by the Company, - - -	-	1,100.00
Loans on Real Estate, - - - - -	-	
Loans on Collaterals, - - - - -	-	
Invested in Bank Stocks, - - - - -	-	237,068.00
Invested in State, City, Town and County Securities,		
Invested in United States Securities, - - -	-	21,000.00
Invested in other Stocks, Bonds and Securities, -	-	
Deferred Premiums treated as Assets, - - -	-	
Commuted Commissions treated as Assets, - - -	-	
Premium Notes treated as Assets. - - - - -	-	2,085.00
Due from Agents, and Premiums due, treated as Assets,		8,322.74
Accrued Interest, Rents, &c., treated as Assets, -	-	
All other Assets treated as Assets, - - - - -	-	1,000.00
		<hr/>
		\$277,441.84

LIABILITIES.

Losses and Claims acknowledged, - - - - -	-	\$8,806.09
Losses and Claims resisted, - - - - -	-	
Losses not acted upon, - - - - -	-	10,226.00
Dividends payable, - - - - -	-	500.00
Capital Stock, - - - - -	-	200,000.00
All other Liabilities, - - - - -	-	
		<hr/>
Gross Liabilities, - - - - -	-	\$219,532.09

REMARKS.

Amount of Losses paid in 1866, - - - - -	-	\$100,844.55
Amount at Risk, - - - - -	-	\$8,250,700.00
Premiums received in 1866, - - - - -	-	

I. S. PARISH, *Secretary.*

S. MAURAN, *President*

Attorney, WM. CONNOR, Hartford.

Statement of the Baltic Fire Insurance Company, of New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, - - -	64,193.99
Whole amount of Assets, - - -	<u>\$264,193.99</u>

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$47,118.13
Real Estate owned by the Company, - - -	8,000.00
Loans on Real Estate, - - -	147,950.00
Loans on Collaterals, - - -	24,100.00
Invested in Bank Stocks, - - -	-
Invested in State, City, Town and County Securities, - - -	-
Invested in United States Securities, - - -	-
Invested in Other Stocks, Bonds and Securities, - - -	-
Deferred Premiums treated as Assets, - - -	-
Commuted Commissions, treated as Assets, - - -	-
Premium Notes, treated as Assets, - - -	-
Due from Agents, and Premiums due, treated as Assets, - - -	12,293.48
Accrued Rents, Interest, &c., treated as Assets, - - -	-
All other Assets, treated as Assets, - - -	24,732.38
	<u>\$264,193.99</u>

LIABILITIES.

Losses and Claims acknowledged, - - -	\$10,900.00
Losses and Claims resisted, - - -	-
Losses not acted upon, - - -	5,392.00
Dividends payable, - - -	-
Capital Stock, - - -	200,000.00
All other Liabilities, - - -	-
Gross Liabilities, - - -	<u>\$216,292.00</u>

REMARKS.

Amount of Losses paid in 1866, - - -	\$150,429.76
Amount at risk, - - -	\$11,158,400.00
Premiums Received in 1866, - - -	\$225,843.00

WM. H. KIPP, *Secretary.*

WM. S. CORWIN, *President.*

Attorney, GEO. S. LESTER, New Haven.

Statement of the Bay State Fire Insurance Company, Worcester, Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$104,800.00
Accumulations and Balances treated as Assets,	-	-	-	34,662.14
Whole amount of Assets,				\$139,462.14

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$4,166.92
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	
Loans on Collaterals,	-	-	-	5,000.00
Invested in Bank Stocks,	-	-	-	45,202.00
Invested in State, City, Town and County Securities,	-	-	-	25,000.00
Invested in United States Securities,	-	-	-	43,577.50
Invested in Other Stocks, Bonds and Securities,	-	-	-	12,686.00
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	-	1,929.72
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	
All other Assets, treated as Assets,	-	-	-	1,900.00
				\$139,462.14

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	\$2,550.00
Dividends payable,	-	-	-	
Capital Stock,	-	-	-	104,800.00
All other Liabilities,	-	-	-	100.00
Gross Liabilities,				\$107,450.00

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$27,583.35
Amount at Risk,	-	-	-	\$3,008,000.00
Received for Premium in 1866,	-	-	-	\$41,930.00

L. C. PARKS, *Secretary.*

W. S. DAVIS, *President.*

Attorney, T. H. PERKINS, Norwich.

Statement of the Capital City Fire Insurance Company, Albany, N. Y., as condensed by their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$200,000.00
Accumulations and Balances treated as Assets,	-	-	-	44,624.99
				<hr/>
Whole amount of Assets,	-	-	-	\$244,624.99

ASSETS.

Amount of Cash on hand in Banks,	-	-	-	\$11,507.24
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	
Loans on Collaterals,	-	-	-	20,000.00
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	209,850.00
Invested in other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions, treated as Assets,	-	-	-	
Premium Notes, as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	-	250.00
Accrued Rents, Interest, &c.,	-	-	-	
All other Assets, treated as Assets,	-	-	-	3,017.75
				<hr/>
				\$244,624.99

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	
Dividends payable,	-	-	-	
Capital Stock,	-	-	-	\$200,000.00
All other Liabilities,	-	-	-	450.00
				<hr/>
Gross Liabilities,	-	-	-	\$200,450.00

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$16,574.87
Amount at Risk,	-	-	-	\$4,026,100.00
Received for Premiums in 1866,	-	-	-	\$34,293.00

JAMES F. CROSBY, *Secretary.* JOSIAH G. ROOT, *Vice President.*
Attorney, L. W. SPERRY, New Haven.

*Statement of the Commerce Fire Insurance Company, Albany, N. Y.,
as condensed from their Reports to January 1, 1867, to the Commis-
sioner of Insurance.*

CAPITAL.

Amount of Capital paid in,	-	-	-	\$400,000.00
Accumulations and Balances treated as Assets,	-	-	-	132,701.29
Whole amount of Assets,				\$532,701.29

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$34,259.47
Real Estate owned by the Company,	-	-	-	45,000.00
Loans on Real Estate,	-	-	-	169,875.00
Loans on Collaterals,	-	-	-	-
Invested in Bank Stocks,	-	-	-	7,500.00
Invested in State, City, Town and County Securities,	-	-	-	-
Invested in United States Securities,	-	-	-	227,472.00
Invested in Other Stocks, Bonds and Securities,	-	-	-	43,745.00
Deferred Premiums treated as Assets,	-	-	-	-
Commuted Commissions, treated as Assets,	-	-	-	-
Premium Notes, treated as Assets,	-	-	-	-
Due from Agents, and Premiums due, treated as Assets,	-	-	-	4,599.82
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	
All other Assets, treated as Assets,	-	-	-	250.00
				\$532,701.29

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	-
Losses and Claims resisted,	-	-	-	-
Losses not acted upon,	-	-	-	11,775.00
Dividends payable,	-	-	-	-
Capital Stock,	-	-	-	400,000.00
All other Liabilities,	-	-	-	-
Gross Liabilities,				\$411,775.00

REMARKS.

Amount of Losses paid in 1866,	-	-	\$139,064.11
Amount at Risk,	-	-	\$21,000,000.00
Received for Premiums in 1866,	-	-	\$240,975.00

G. A. VAN ALLEN, *Secretary.*

A. VAN ALLEN, *President.*

Attorney, B. B. WHITTEMORE, Norwich.

Statement of the Continental Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$500,000.00
Accumulations and Balances treated as Assets,	1,168,136.57
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Whole amount of Assets, - -	\$1,668,136.57

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$98,215.21
Real Estate owned by the Company,	-	-	-	150,000.00
Loans on Real Estate,	-	-	-	451,200.00
Loans on Collaterals,	-	-	-	233,375.00
Invested in Bank Stocks,	-	-	-	121,650.00
Invested in State, City, Town and County Securities,				
Invested in United States Securities,	-	-		405,040.00
Invested in Other Stocks, Bonds and Securities,	-			169,125.00
Deferred Premiums treated as Assets,	-	-		
Commuted Commissions treated as Assets,	-	-		
Premium Notes treated as Assets,	-	-	-	22,650.25
Due from Agents, and Premiums due, treated as Assets,				
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	} 16,881.11
All other Assets, treated as Assets,	-	-	-	
				<hr/> \$1,668,136.57

LIABILITIES.

Losses and Claims acknowledged, - - -	\$30,000.00
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	27,814.22
Dividends payable, - - -	27,510.00
Capital Stock, - - -	500,000.00
All other Liabilities, Scrip, Dividends, &c., -	28,651.00
<hr/>	
Gross Liabilities, - - -	\$614,075.22

REMARKS.

Amount of Losses paid in 1866, - - -	\$334,484.17
Amount at Risk, - - -	\$82,700,000.00
Premiums Received in 1866, - - -	\$615,700.00

CYRUS PECK, *Secretary.*

GEO. T. HOPE, *President.*

Attorney, S. HARTWELL, Bridgeport.

*Statement of the Enterprize Fire and Marine Insurance Company,
Cincinnati, Ohio, as condensed from their Reports to January 1,
1867, to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$300,000.00
Accumulations and Balances treated as Assets, -	135,440.20
<hr/>	
Whole amount of Assets, - - -	\$435,440.20

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$15,162.21
Real Estate owned by the Company,	-	-	-	9,641.83
Loans on Real Estate,	-	-	-	84,905.01
Loans on Collaterals,	-	-	-	58,075.00
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,				
Invested in United States Securities,	-	-		87,500.00
Invested in Other Stocks, Bonds and Securities,	-			17,600.00
Deferred Premiums treated as Assets,	-	-		
Commuted Commissions treated as Assets,	-			
Premium Notes treated as Assets,	-	-	-	66,383.59
Due from Agents, and Premiums due, treated as Assets,				65,277.62
Accrued Rents, Interest, &c., treated as Assets,			-	} 30,894.94
All other Assets, treated as Assets,	-	-		
				<hr/>
				\$435,440.20

LIABILITIES.

Losses and Claims acknowledged, - - -	\$15,646.87
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	16,900.00
Dividends payable, - - -	
Capital Stock, - - -	300,000.00
All other Liabilities, - - -	2,678.05
<hr/>	
Gross Liabilities, - - -	\$335,224.92

REMARKS.

Amount of Losses paid in 1866, - - -	\$13,206.06
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WM. M. RICHARDSON, *Secretary.* W. B. CASSILY, *V. President*
Attorney, T. H. PERKINS, *Norwich.*

Statement of the Excelsior Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	-	\$200,000.00
Accumulations and Balances treated as Assets, -	-	135,129.79
		<hr/>
Whole amount of Assets, - - -	-	\$335,129.79

ASSETS.

Amount of Cash on hand and in Banks, - - -	-	\$11,704.02
Real Estate owned by the Company, - - -	-	66,500.00
Loans on Real Estate, - - - - -	-	75,179.16
Loans on Collaterals, - - - - -	-	92,050.00
Invested in Bank Stocks, - - - - -	-	
Invested in State, City, Town and County Securities,		
Invested in United States Securities, - - -	-	69,094.12
Invested in other Stocks, Bonds and Securities, -	-	
Deferred Premiums treated as Assets, - - -	-	
Commuted Commissions treated as Assets, - - -	-	
Premium Notes treated as Assets, - - -	-	
Due from Agents, and Premiums due, treated as Assets,		2,743.67
Accrued Rents, Interest, &c., treated as Assets, -	-	} 17,858.82
All other Assets, treated as Assets, - - -	-	
		<hr/>
		\$335,129.79

LIABILITIES.

Losses and Claims acknowledged, - - -	-	
Losses and Claims resisted, - - - - -	-	\$6,000.00
Losses not acted upon, - - - - -	-	20,588.00
Dividends payable - - - - -	-	30.00
Capital Stock, - - - - -	-	200,000.00
All other Liabilities, - - - - -	-	
		<hr/>
Gross Liabilities, - - - - -	-	\$226,618.00

REMARKS.

Amount of Losses paid in 1866, - - -	-	\$143,517.44
Amount at Risk, - - - - -	-	\$18,106,000.00
Received for Premiums in 1866, - - -	-	\$234,102.00

SAMUEL M. CROSS, *Secretary.*

M. V. HODGE, *President.*

Attorney, C. WILCOX, New Haven.

Statement of the Fulton Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	71,189.30
Whole amount of Assets, - - -	<u>\$271,189.30</u>

ASSETS.

Amount of Cash on hand and in Banks, - -	\$15,550.06
Real Estate owned by the Company, - -	
Loans on Real Estate, - - -	93,600.00
Loans on Collaterals, - - -	21,350.00
Invested in Bank Stocks, - - -	
Invested in State, City, Town and County Securities,	
Invested in United States Securities, - -	76,000.00
Invested in other Stocks, Bonds and Securities, -	22,000.00
Deferred Premiums treated as Assets, - -	
Commuted Commissions treated as Assets, - -	
Premium Notes treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets,	10,459.65
Accrued Rents, Interest, &c., treated as Assets, -	} 32,229.59
All other Assets treated as Assets, - - -	
	<u>\$271,189.30</u>

LIABILITIES.

Losses and Claims acknowledged, - - -	2,693.00
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	9,950.00
Dividends payable, - - -	
Capital Stock, - - -	200,000.00
All other Liabilities, - - -	12.29
Gross Liabilities, - - -	<u>\$212,655.29</u>

REMARKS.

Amount of Losses paid in 1866, - - -	\$177,077.67
Amount at Risk, - - -	\$22,219,000.00
Premiums received in 1866, - - -	\$218,010.00

JAMES M. RANKIN, *Secretary.* WILLIAM A. COBB, *President.*
Attorney, JUDAH FRISBIE, New Haven.

Statement of the Germania Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in	-	-	-	-	\$500,000.00
Accumulations and Balances treated as Assets,	-	-	-	-	240,482.43
Whole amount of Assets,					<u>\$740,482.43</u>

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	-	\$25,922.63
Real Estate owned by the Company,	-	-	-	-	50,000.00
Loans on Real Estate,	-	-	-	-	86,000.00
Loans on Collaterals,	-	-	-	-	62,600.00
Invested in Bank Stocks,	-	-	-	-	7,500.00
Invested in State, City, Town and County Securities,	-	-	-	-	
Invested in United States Securities,	-	-	-	-	438,008.75
Invested in other Stocks, Bonds and Securities,	-	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	-	
Commuted Commissions treated as Assets,	-	-	-	-	
Premium Notes treated as Assets,	-	-	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	-	-	22,360.99
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	-	} 48,090.06
All other Assets treated as Assets,	-	-	-	-	
					<u>\$740,482.43</u>

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	-	
Losses and Claims resisted,	-	-	-	-	
Losses not acted upon,	-	-	-	-	39,138.37
Dividends payable,	-	-	-	-	
Capital Stock,	-	-	-	-	500,000.00
All other Liabilities,	-	-	-	-	1,100.00
Gross Liabilities, -					<u>\$540,238.37</u>

REMARKS.

Amount of Losses paid in 1866,	-	-	-	-	\$255,360.71
Amount at Risk,	-	-	-	-	\$42,296,300.00
Received for Premiums in 1866,	-	-	-	-	\$507,237.00

JOHN E. KAHL, *Secretary.*

R. GARRIGUE, *President.*

Attorney, C. C. KIMBALL, Hartford.

Statement of the Girard Fire and Marine Insurance Company, Philadelphia, Penn., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	-	\$200,000.00
Accumulations and Balances treated as Assets,	-	-	-	-	122,176.64
Whole amount of Assets,					<hr/> \$322,176.64

ASSETS.

Amount of cash on hand and in Banks,	-	-	-	-	\$12,667.82
Real Estate owned by the Company,	-	-	-	-	168,000.00
Loans on Real Estate,	-	-	-	-	75,172.00
Loans on Collaterals,	-	-	-	-	5,368.70
Invested in Bank Stocks,	-	-	-	-	-
Invested in State, City, Town and County Securities,	-	-	-	-	-
Invested in United States Securities,	-	-	-	-	25,657.12
Invested in other Stocks, Bonds and Securities, \$7,800,	-	-	-	-	-
Collaterals, \$800,	-	-	-	-	8,600.00
Deferred Premiums treated as Assets,	-	-	-	-	-
Commuted Commissions treated as Assets,	-	-	-	-	-
Premium Notes treated as Assets,	-	-	-	-	-
Due from Agents, and Premiums due, treated as Assets,	-	-	-	-	5,386.00
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	-	} 21,325.00
All other Assets treated as Assets,	-	-	-	-	
					<hr/> \$522,176.64

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	-	\$3,591.00
Losses and Claims resisted,	-	-	-	-	-
Losses not acted upon,	-	-	-	-	3,176.37
Dividends payable,	-	-	-	-	615.00
Capital Stock,	-	-	-	-	200,000.00
All other Liabilities,	-	-	-	-	-
Gross Liabilities,					<hr/> \$207,382.37

REMARKS.

Amount of Losses paid in 1866,	-	-	-	-	\$59,045.45
Amount at Risk,	-	-	-	-	-
Received for Premiums in 1866,	-	-	-	-	-

JAMES B. ALVORD, *Secretary.* THOMAS CRAVEN, *President.*
Attorney, RALPH GILLETTE, Hartford.

Statement of the Glens Falls Fire Insurance Company, Glens Falls, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	162,296.19
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Whole amount of Assets, - - -	\$362,296.19

ASSETS.

Amount of Cash on hand and in Banks, - -	\$20,214.29
Real estate owned by the Company, - - -	8,200.00
Loans on Real Estate, - - - -	38,170.37
Loans on Collaterals, - - - -	9,000.00
Invested in Bank Stocks, - - - -	12,375.00
Invested in State, City, Town and County Securities, - - -	
Invested in United States Securities, - - -	262,769.72
Invested in Other Stocks, Bonds and Securities, - - -	3,186.88
Deferred Premiums treated as Assets, - - -	
Commuted Commissions, treated as Assets, - - -	
Premium Notes, treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets, -	5,729.93
Accrued Rents, Interest, &c., treated as Assets, -	
All other Assets, treated as Assets, - - -	2,650.00
<hr/>	
	\$362,296.19

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - - -	
Losses not acted upon, - - - -	3,000.00
Dividends payable, - - - -	
Capital Stock, - - - -	200,000.00
All other Liabilities, - - - -	
<hr/>	
Gross Liabilities, - - - -	\$203,000.00

REMARKS.

Amount of Losses paid in 1866, - - -	\$48,194.34
Amount at Risk, - - - -	\$25,910,500.00
Received in 1866 for Premiums, - - -	\$99,200.00

A. NEWTON LOCKE, *Secretary.*

R. M. LITTLE, *President.*

Attorney, S. ST. Y. JOHN, New Canaan.

Statement of the Hanover Fire Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$400,000.00
Accumulations and Balances treated as Assets, -	161,331.61
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Whole amount of Assets, - - -	\$561,331.61

ASSETS.

Amount of Cash on hand and in Banks, - -	\$31,991.36
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - - -	80,200.00
Loans on Collaterals, - - - - -	19,500.00
Invested in Bank Stocks, - - - -	
Invested in State, City, Town and County Securities, -	20,067.50
Invested in United States Securities, - -	354,275.00
Invested in other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - -	
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets, -	19,107.24
Accrued Rents, Interest, &c., treated as Assets, -	4,739.74
All other Assets, including Premiums unpaid at office, -	31,450.77
<hr/>	
	\$561,331.61

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - - -	
Losses not acted upon, - - - - -	25,330.34
Dividends payable, - - - - -	
Capital Stock, - - - - -	400,000.00
All other Liabilities, - - - - -	8,920.64
<hr/>	
Gross Liabilities, - - - - -	\$434,250.98

REMARKS.

Amount of Losses paid in 1866, - - -	\$264,724.50
Amount at Risk, - - - - -	\$20,300,800.00
Received for Premiums in 1866, - - -	\$377,240.00

J. R. LANE, *Secretary.*

BENJ. S. WALCOTT, *President.*

Attorney, THOMAS H. PERKINS, Norwich.

Statement of the Holyoke Mutual Fire Insurance Company, Salem Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital, in deposit Notes,	-	-	\$204,629.05
Accumulations and Balances treated as Assets,	-	-	116,376.46
Whole amount of Assets,			\$321,006.51

CASH ASSETS.

Amount of Cash on hand and in Banks,	-	-	\$3,088.44
Real Estate owned by the Company,	-	-	33,262.22
Loans on Real Estate,	-	-	14,830.91
Loans on Collaterals,	-	-	2,186.16
Invested in Bank Stocks,	-	-	41,875.00
Invested in State, City, Town and County Securities,	-	-	6,705.00
Invested in United States Securities,	-	-	
Invested in Other Stocks, Bonds and Securities,	-	-	6,137.50
Deferred Premiums treated as Assets,	-	-	
Commuted Commissions treated as Assets,	-	-	
Premium Notes treated as Assets,	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	7,360.51
Accrued Rents, Interest, &c., treated as Assets,	-	-	
All other Assets treated as Assets,	-	-	930.72
			\$116,376.46

LIABILITIES.

Losses and Claims acknowledged,	-	-	\$2,552.50
Losses and Claims resisted,	-	-	
Losses not acted upon,	-	-	1,125.00
Dividends payable,	-	-	619.07
All other Liabilities,	-	-	5,665.00
Gross Liabilities,			\$9,971.57

REMARKS.

Amount of Losses paid in 1866,	-	-	\$151,516.54
Amount at Risk,	-	-	\$14,648,700.00
Received for Premiums in 1866, Notes,	-	-	\$89,788.17

THOS. H. JOHNSON, *Secretary.* AUGUSTUS STORY, *President.*
Attorney, A. N. CRANDALL, Norwich.

*Statement of the Home Fire and Marine Insurance Company, N. Y.,
as condensed from their Reports to January 1, 1867, to the Commis-
sioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$2,000,000.00
Accumulations and Balances treated as Assets, -	1,377,454.22
<hr/>	
Whole amount of Assets, - - -	\$3,377,454.22

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$210,158.03
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - - -	983,242.00
Loans on Collaterals, - - - -	164,000.00
Invested in Bank Stocks, - - - -	122,529.00
Invested in State, City, Town and County Securities, -	418,125.00
Invested in United States Securities, - - -	1,381,297.25
Invested in Other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - - -	
Commuted Commissions treated as Assets, - - -	
Premium Notes treated as Assets, - - -	
Due from Agents, Premiums due, treated as Assets	213,097.28
Accrued Rents, Interest, &c., treated as Assets, Steamer	
Magnet and apparatus, - - - -	136,264.74
All other Assets treated as Assets, - - -	16,675.07
<hr/>	
	\$3,377,454.22

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - - -	
Losses not acted upon, - - - -	\$266,134.65
Dividends payable, - - - -	1,800.00
Capital Stock, - - - -	2,000,000.00
All other Liabilities, - - - -	
<hr/>	
Gross Liabilities, - - - -	\$2,267,934.65

REMARKS.

Amount of Losses paid in 1866, - - -	\$1,874,449.04
Amount at Risk, - - - -	\$196,705,000.00
Received for Premiums in 1866, - - -	\$2,598,328.00

JOHN MCGEE, *Secretary.*

CHAS. J. MARTIN, *President.*

Attorney, GARDNER MORSE, New Haven.

*Statement of the Hope Fire Insurance Company, Providence, R. I.
as condensed from their Reports to January 1, 1866, to the Com-
missioner of Insurance.*

Amount of Capital paid in, - - -	\$150,000.00
Accumulations and Balance treated as Assets, -	42,116.92
<hr/>	
Whole amount of Assets, - - -	\$192,116.92

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$11,203.00
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - -	
Loans on Collaterals, - - -	
Invested in Bank Stocks, - - -	160,905.00
Invested in State, City, Town and County Securities,	
Invested in United States Securities, - - -	10,800.00
Invested in other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - - -	
Commuted Commissions treated as Assets, - - -	
Premium Notes treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets,	7,783.92
Accrued Rents, Interest, &c., treated as Assets, -	
All other Assets treated as Assets, - - -	1,425.00
<hr/>	
	\$192,116.92

LIABILITIES.

Losses and Claims acknowledged, - - -	\$6,550.00
Losses and Claims resisted, - - -	11,326.96
Losses not acted upon, - - -	
Dividends payable, - - -	
Capital Stock, - - -	150,000.00
All other Liabilities, - - -	14,000.00
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Gross Liabilities, - - -	\$181,876.96

REMARKS.

Amount of Losses paid in 1866, - - -	\$71,598.85
Amount at Risk, - - -	\$5,395,000.00
Received for Premiums in 1866, - - -	

JOSEPH MARTIN, *Secretary.* AMOS M. WARREN, *President.*

Attorney, C. C. KIMBALL, Hartford.

Statement of the Howard Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$500,000.00
Accumulations and Balances treated as Assets, -	118,468.89
<hr/>	
Whole amount of Assets, - - -	\$618,468.89

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$26,683.26
Real Estate owned by the Company,	-	-	-	90,000.00
Loans on Real Estate,	-	-	-	52,500.00
Loans on Collaterals,	-	-	-	18,750.00
Invested in Bank Stocks,	-	-	-	35,550.00
Invested in State, City, Town and County Securities,				
Invested in United States Securities,	-	-	-	267,300.00
Invested in other Stocks, Bonds and Securities,	-			106,400.00
Deferred Premiums treated as Assets,	-		-	
Commuted Commissions treated as Assets,	-		-	
Premium Notes, treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,				1,905.83
Accrued Rents, Interest, &c., treated as Assets,	-		-	} 18,379.80
All other Assets treated as Assets,	-	-		
				<hr/>
				\$618,468.89

LIABILITIES.

Losses and Claims acknowledged, - - -	\$6,097.00
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	3,000.00
Dividends payable, - - -	147.00
Capital Stock, - - -	500,000.00
All other Liabilities, - - -	106.12
<hr/>	
Gross Liabilities, - - -	\$509,350.12

REMARKS.

Amount of Losses paid in 1866, - - -	\$109,447.84
Amount at Risk, - - -	\$18,254,500.00
Received for Premiums in 1866, - - -	\$143,115.00

HENRY A OAKLEY, *Secretary.* SAMUEL T. SKIDMORE, *President.*
Attorney, CALEB MIX, New Haven,

*Statement of the International Fire Insurance Company, New York,
as condensed from their Reports to January 1, 1857, to the Com-
missioner of Insurance.*

CAPITAL.

Amount of Capital paid in,	-	-	-	\$1,000,000.00
Accumulations and Balances treated as Assets,	-	-	-	444,936.17
				<hr/>
				\$1,444,936.17

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$32,600.00
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	50,000.00
Loans on Collaterals,	-	-	-	65,450.00
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	919,312.50
Invested in other Stocks, Bonds and Securities,	-	-	-	20,400.00
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	-	255,556.49
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	} 101,617.18
All other Assets treated as Assets,	-	-	-	
				<hr/>
				\$1,444,936.17

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$78,746.03
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	
Dividends payable,	-	-	-	
Capital Stock,	-	-	-	1,000,000.00
All other Liabilities,	-	-	-	
				<hr/>
Gross Liabilities,	-	-	-	\$1,078,746 03

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$1,076,447.45
Amount at Risk,	-	-	-	\$105,847,000.00
Premiums received in 1866,	-	-	-	\$1,191,000.00

C. C. HINE, *Secretary.*

CHAS. TAYLOR, *President.*

Attorney, WILLIAM WALLACE, Hartford.

Statement of the Fire Insurance Company of North America, Philadelphia, Penn., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	- \$500,000.00
Accumulations and Balances treated as Assets, -	1,263,267.23
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Whole amount of Assets, - -	\$1,763,267.23

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$133,527.38
Real Estate owned by the Company,	-	-	-	40,000.00
Loans on Real Estate,	-	-	-	378,300.00
Loans on Collaterals,	-	-	-	34,000.00
Invested in Bank Stocks,	-	-	-	15,000.00
Invested in State, City, Town and County Securities,				313,000.00
Invested in United States Securities,	-	-		317,700.00
Invested in other Stocks, Bonds and Securities,			-	218,605.00
Deferred Premiums treated as Assets,	-	-		
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	109,905.11
Due from Agents, and Premiums due, treated as Assets,				26,780.35
Accrued Rents, Interest, &c., treated as Assets,			-	} 175,649.39
All other Assets treated as Assets,	-	-		
				<hr/>
				\$1,763,267.23

LIABILITIES.

Losses and Claims acknowledged, - - -	-
Losses and Claims resisted, - - -	-
Losses not acted upon, - - -	- \$136,000.00
Dividends payable, - - -	3,000.00
Capital Stock, - - -	500,000.00
All other Liabilities, - - -	-
<hr/>	
Gross Liabilities, - - -	- \$639,000.00

REMARKS.

Amount of Losses paid in 1866, - - -	- \$511,097.61
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CHAS. PLATT, *Secretary.*

ARTHUR G. COFFIN, *President.*

Attorney, C. C. KIMBALL, Hartford.

Statement of the Lamar Fire Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$300,000.00
Accumulations and Balances treated as Assets,	-	-	-	138,321.13
Whole amount of Assets,				<u>\$433,321.13</u>

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$6,506.80
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	157,700.00
Loans on Collaterals,	-	-	-	10,100.00
Invested in Bank Stocks,	-	-	-	25,500.00
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	211,455.00
Invested in Other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions, treated as Assets,	-	-	-	
Premium Notes, treated as Assets,	-	-	-	8,411.33
Due from Agents, and Premiums due, treated as Assets,	-	-	-	3,495.75
Accrued Rents, Interest, &c.,	-	-	-	
All other Assets, treated as Assets,	-	-	-	10,132.25
				<u>\$433,321.13</u>

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	\$10,500.00
Dividends payable,	-	-	-	
Capital Stock,	-	-	-	300,000.00
All other Liabilities,	-	-	-	
Gross Liabilities,				<u>\$310,500.00</u>

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$145,704.11
Amount at Risk,	-	-	-	\$9,595,000.00
Premiums paid in 1866,	-	-	-	\$208,061.00

ISAAC R. ST. JOHN, *Secretary.* EDWARD ANTHONY, *President.*
Attorney, J. FRISBE, New Haven.

Statement of the Lenox Fire Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$150,000.00
Accumulations and Balances treated as Assets, -	40,824.36
<hr/>	
Whole amount of Assets, - - -	\$190,824.36

ASSETS.

Amount of Cash on hand and in Banks, -	\$1,613.14
Real Estate owned by the Company, - -	-
Loans on Real Estate, - - -	68,950.00
Loans on Collaterals, - - -	-
Invested in Bank Stocks, - - -	-
Invested in State, City, Town and County Securities, -	3,377.92
Invested in United States Securities, - -	105,800.00
Invested in Other Stocks, Bonds and Securities, -	-
Deferred Premiums treated as Assets, - -	-
Commuted Commission, treated as Assets, -	-
Premium Notes, - - -	-
Due from Agents, and Premiums due, treated as Assets, -	550.00
Accrued Rents, Interest, &c., treated as Assets, -	-
All other Assets, treated as Assets, - - -	10,000.00
<hr/>	
	\$190,824.36

LIABILITIES.

Losses and Claims acknowledged, - - -	\$17,321.72
Losses and Claims received, - - -	-
Losses not acted upon, - - -	-
Dividends payable, - - -	-
Capital Stock, - - -	150,000.00
All other Liabilities, - - -	15,000.00
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Gross Liabilities, - - -	\$182,321.72

REMARKS.

Amount of Losses paid in 1866, - - -	\$99,844.18
Amount at Risk, - - -	\$8,565,542.00
Amount Received for Premium in 1866, - -	\$101,375.00

W. M. FRANKLIN, *Secretary.*

GEO. A. JARVIS, *President.*

Attorney, JUDAH FRISBIE, New Haven.

Statement of the Lorillard Fire Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$1,000,000.00
Accumulations and Balances treated as Assets,	-	-	-	436,540.27
				<hr/>
Whole amount of Assets,	-	-	-	\$1,436,540.27

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$81,484.44
Real Estate owned by the Company,	-	-	-	55,245.50
Loans on Real Estate,	-	-	-	-
Deposit with N. Y. Guaranty and Ind. Co.,	-	-	-	372,900.00
Bank Stock and Loans,	-	-	-	61,500.00
Invested in State, City, Town and County Securities,	-	-	-	70,000.00
Invested in United States Securities,	-	-	-	660,150.00
Invested in Other Stocks, Bonds and Securities,	-	-	-	-
Deferred Premiums treated as Assets,	-	-	-	-
Commuted Commissions treated as Assets,	-	-	-	-
Premium Notes treated as Assets,	-	-	-	-
Due from Agents, and Premiums due, treated as Assets,	-	-	-	102,055.05
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	} 33,205.28
All other Assets treated as Assets,	-	-	-	
				<hr/>
				\$1,436,540.27

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	-
Losses and Claims resisted,	-	-	-	-
Losses not acted upon,	-	-	-	\$46,259.24
Capital Stock,	-	-	-	1,000,000.00
All other Liabilities,	-	-	-	-
				<hr/>
Gross Liabilities,	-	-	-	\$1,046,259.24

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$552,980.27
Amount at Risk,	-	-	-	\$93,629,000.00
Premiums Received in 1866,	-	-	-	\$670,855.00

JOHN C. MILLS, *Secretary.* CARLISLE NORWOOD, *President.*

Attorney, ROB. A. JOHNSON, Hartford.

Statement of the Manhattan Fire and Marine Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$500,000.00
Accumulations and Balances treated as Assets, -	534,128.10
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Whole amount of Assets, - -	\$1,034,128.10

ASSETS.

Amount of Cash on hand and in Banks,	-	-	\$63,014.92
Real Estate owned by the Company,	-	-	
Loans on Real Estate,	-	-	179,350.00
Loans on Collaterals,	-	-	20,802.08
Invested in Bank Stocks,	-	-	
Invested in State, City, Town and County Securities,			53,000.00
Invested in United States Securities,	-	-	527,950.00
Invested in Other Stocks, Bonds and Securities,	-		
Deferred Premiums treated as Assets,	-	-	
Commuted Commissions treated as Assets,		-	
Premium Notes treated as Assets,	-	-	
Due from Agents, and Premiums due, treated as Assets,			124,008.82
Accrued Rents, Interest, &c., treated as Assets,		-	} 66,002.28
All other Assets treated as Assets,	-	-	
			<hr/>
			\$1,034,128.10

LIABILITIES.

Losses and Claims on Marine Risks, - -	\$28,592.00
Losses and Claims on Fire Risks, - -	70,300.00
Losses not acted upon, - - -	7,750.00
Dividends payable, - - -	842.50
Capital Stock, - - -	500,000.00
All other Liabilities, - - -	
<hr/>	
Gross Liabilities, - - -	\$607,484.50

REMARKS.

Amount of Losses paid in 1866, - - -	\$924,946.43
Amount at Risk, - - -	\$52,887,800.00
Premiums Received for 1866, - - -	\$1,119,888.00

GEO. B. HODGSDON, *Secretary.* ANDREW J. SMITH, *V. President.*
Attorney, WM. CONNOR, Hartford.

Statement of the Market Fire Insurance Company, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$200,000.00
Accumulations and Balances treated as Assets,	-	-	-	218,450.84
Whole amount of Assets,	-	-	-	<u>\$418,450.84</u>

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	24,225.83
Real Estate owned by the Company,	-	-	-	-
Loans on Real Estate,	-	-	-	148,532.00
Loans on Collaterals,	-	-	-	46,830.00
Invested in Bank Stocks,	-	-	-	5,500.00
Invested in State, City, Town and County Securities,	-	-	-	-
Invested in United States Securities,	-	-	-	169,092.50
Invested in Other Stocks, Bonds and Securities,	-	-	-	1,075.00
Deferred Premiums treated as Assets,	-	-	-	-
Commuted Commissions, treated as Assets,	-	-	-	-
Premium Notes, treated as Assets,	-	-	-	11,250.57
Due from Agents, and Premiums due, treated as Assets,	-	-	-	3,914.09
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	-
All other Assets,	-	-	-	8,030.85
				<u>\$418,450.84</u>

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$9,615.21
Losses and Claims resisted,	-	-	-	-
Losses not acted upon,	-	-	-	8,500.00
Scrip Dividends outstanding, not yet redeemable,	-	-	-	155,747.00
Capital Stock,	-	-	-	200,000.00
All other Liabilities,	-	-	-	-
Gross Liabilities,	-	-	-	<u>\$373,862.21</u>

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$173,071.79
Amount at Risk,	-	-	-	\$26,155,000.00
Premiums Received in 1866,	-	-	-	\$273,500.00

H. P. FREEMAN, *Secretary.*

ASHER TAYLOR, *President.*

Attorney, IRA SHERMAN, Bridgeport.

Statement of the Merchants Fire Insurance Company, Providence, R. I., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	58,566.42
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Whole amount of Assets, - - -	\$258,566.42

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$8,280.31
Real Estate owned by the Company, - - -	
Loans on Real Estate, - - - - -	
Loans on Collaterals, - - - - -	
Invested in Bank Stocks, - - - - -	195,000.00
Invested in State, City, Town and County Securities,	
Invested in United States Securities, - - -	50,000.00
Invested in Other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - - -	
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - - -	
Due from Agents, and Premiums due, treated as Assets,	5,286.11
Accrued Rents, Interest, &c., treated as Assets, -	
All other Assets, treated as Assets, - - -	
<hr/>	
	\$258,566.42

LIABILITIES.

Losses and Claims acknowledged, - - -	\$2,100.00
Losses and Claims resisted, - - - - -	
Losses not acted upon, - - - - -	12,000.00
Dividends payable, - - - - -	
Capital Stock, - - - - -	200,000.00
All other Liabilities, - - - - -	
<hr/>	
Gross Liabilities, - - - - -	\$214,100.00

REMARKS.

Amount of Losses paid in 1866, - - -	\$85,969.88
WALTER PAINE, <i>Secretary.</i>	WM. COMSTOCK, <i>President.</i>
<i>Attorney, WM. CONNOR, Hartford.</i>	

Statement of the Merchants and Farmers Mutual Fire Insurance Company, Worcester, Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Accumulated Capital,	-	-	-	\$147,749.34
Accumulations and Balances treated as Assets,	-			574,350.58
				<hr/>
Whole amount of Assets,	-	-	-	\$722,099.92

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$9,293.95
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	3,400.00
Loans on Collaterals,	-	-	-	6,000.00
Invested in Bank Stocks,	-	-	-	33,346.00
Invested in State, City, Town and County Securities,				
Invested in United States Securities,	-	-	-	87,510.39
Invested in other Stocks, Bonds and Securities,	-			8,000.00
Deferred Premiums treated as Assets,	-		-	
Commuted Commissions treated as Assets,			-	
Premium Notes treated as Assets,	-	-	-	572,050.58
Due from Agents, and Premiums due, treated as Assets,				1,500.00
Accrued Rents, Interest, &c., treated as Assets,			-	
All other Assets treated as Assets,	-	-		1,000.00
				<hr/>
				\$722,099.92

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	-	\$2,000.00
Losses and Claims resisted,	-	-	-	-	
Losses not acted upon,	-	-	-	-	
Dividends payable,	-	-	-	-	300.00
Capital accumulated,	-	-	-	-	\$147,749.34
Gross Liabilities,	-	-	-	-	\$150,049.34

REMARKS.

Amount of Losses paid in 1866,	-	-	\$2,516.25
Amount at Risk,	-	-	\$15,086,000.00
Premiums paid in Notes in 1866,	-	-	\$64,617.00

E. B. STODDARD, *Secretary.*

ISAAC DAVIS, *President.*

Attorney, RALPH GILLETTE, Hartford.

*Statement of the Metropolitan Fire and Marine Insurance Company,
New York, as condensed from their Reports to January 1, 1867,
to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in,	-	-	-	\$1,000,000.00
Accumulations and Balances treated as Assets,				502,873.98
				<hr/>
Whole amount of Assets,	-	-	-	\$1,502,873.98

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$84,186.77
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	373,912.00
Loans on Collaterals,	-	-	-	68,715.00
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	717,049.00
Invested in other Stocks, Bonds and Securities,	-	-	-	9,720.63
Miscellaneous Assets treated as Assets,	-	-	-	57,445.96
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,				
Fire and Marine,	-	-	-	173,214.67
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	
All other Assets treated as Assets,	-	-	-	18,629.15
				<hr/>
				\$1,502,873.98

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$147,272.80
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	61,186.76
Dividends payable,,	-	-	-	
Capital Stock,	-	-	-	1,000,000.00
All other Liabilities,	-	-	-	306,599.61
				<hr/>
Gross Liabilities,	-	-	-	\$1,515,059.17

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$1,810,735.29
Amount at Risk,	-	-	-	\$92,586,200.00
Premiums paid in 1866,	-	-	-	\$1,844,873.00

H. H. PORTER, *Secretary*. CLINTON B. FISK, *V. President*.

Attorney, RALPH GILLET, Hartford,

*Statement of the Narragansett Fire and Marine Insurance Company,
Providence, R. I., as condensed from their Reports to January 1,
1867, to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$328,490.00
Accumulations and Balances treated as Assets, -	152,654.12
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Whole amount of Assets, - - -	\$481,144.12

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$18,514.62
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	
Loans on Collaterals,	-	-	-	
Invested in Bank Stocks,	-	-	-	169,680.00
Invested in State, City, Town and County Securities,				
Invested in United States Securities,	-	-	-	185,199.38
Invested in Other Stocks, Bonds and Securities,				
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions, treated as Assets,	-	-	-	
Premium Notes, treated as Assets,	-	-	-	57,447.38
Due from Agents, and Premiums due, treated as Assets,				37,927.78
Accrued Rents, Interest, &c., treated as Assets,				} 12,374.96
All other Assets, treated as Assets,	-	-	-	
				<hr/>
				\$481,144.12

LIABILITIES.

Losses and Claims acknowledged, - - -	\$20,000.00
Losses and Claims resisted, - - - - -	
Losses not acted upon, - - - - -	
Dividends payable, - - - - -	7.00
Capital Stock, - - - - -	328,490.00
All other Liabilities, - - - - -	15,856.11
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Gross Liabilities, - - - - -	\$364,353.11

REMARKS.

Amount of Losses paid in 1866, - - - \$360,460.63

E. TURNER, *Secretary.*

ALLEN O. PECK, *President.*

Attorney, Wm. CONNOR, Hartford.

Statement of the National Fire Insurance Company, Boston, Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$300,000.00
Accumulations and Balances treated as Assets, -	384,941.49
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Whole amount of Assets, - - -	\$684,941.49

ASSETS.

Amount of Cash on hand and in Banks,	-	-	\$5,025.40
Real Estate owned by the Company,	-	-	
Loans on Real Estate,	-	-	53,500.00
Loans on Collaterals,	-	-	49,800.00
Invested in Bank Stocks,	-	-	358,790.00
Invested in State, City, Town and County Securities,			12,590.00
Invested in United States Securities,	-	-	65,390.00
Invested in Other Stocks, Bonds and Securities,			57,275.00
Deferred Premiums treated as Assets,	-	-	
Commuted Commissions, treated as Assets,	-		
Premium Notes, treated as Assets,	-	-	66,681.54
Due from Agents, and Premiums due, treated as Assets,			8,618.41
Accrued Rents, Interest, &c., treated as Assets,		-	} 7,271.14
All other assets, treated as Assets,	-	-	
			<hr/>
			\$684,941.49

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - - - -	
Losses not acted upon, - - - - -	\$53,530.00
Dividends payable, - - - - -	673.00
Capital Stock, - - - - -	300,000.00
All other Liabilities, - - - - -	
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Gross Liabilities, - - - - -	\$354,203.00

REMARKS.

Amount of Losses paid in 1866, - - -	\$195,605.82
Amount at Risk, - - - - -	\$20,213,750.00
Premiums Received in 1866, - - -	\$131,670.00

GEO. W. KUHN, *Secretary.*

A. H. BEAN, *President.*

Attorney, G. W. Root, Hartford.

Statement of the Niagara Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	1,000,000.00
Accumulations and Balances treated as Assets, -	\$278,405.98
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Whole amount of Assets, - - -	\$1,278,405.98

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$65,512.30
Real Estate owned by the Company, by lease hold, -	100,000.00
Loans on Real Estate, - - - - -	203,700.00
Loans on Collaterals, - - - - -	295,100.00
Invested in Bank Stocks, - - - - -	-
Invested in State, City, Town and County Securities, -	8,000.00
Invested in United States Securities, - - -	511,587.50
Invested in other Stocks, Bonds and Securities, -	-
Deferred Premiums treated as Assets, - - -	-
Commuted Commissions treated as Assets, - - -	-
Premium Notes treated as Assets, - - - -	43,852.25
Due from Agents, and Premiums due, treated as Assets,	50,653.93
Accrued Rents, Interest, &c., treated as Assets, -	-
All other Assets treated as Assets, - - - -	43,852.25
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	\$1,278,405.98

LIABILITIES.

Losses and Claims acknowledged, - - - -	-
Losses and Claims resisted, - - - - -	-
Losses not acted upon, - - - - -	\$40,000.00
Dividends payable, - - - - -	886.00
Capital Stock, - - - - -	1,000,000.00
All other Liabilities, - - - - -	-
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Gross Liabilities, - - - - -	\$1,040,886.00

REMARKS.

Amount of Losses paid in 1866, - - - -	\$409,000.00
Amount at Risk, - - - - -	\$38,821,000.00
Premiums paid in 1866, - - - - -	\$97,565.00

P. NOTMAN, *Secretary.*

JOHN D. STEELE, *President.*

Attorney, CHAS. ROBINSON, New Haven.

*Statement of the North American Fire Insurance Company, New York,
as condensed from their Reports to January 1, 1867, to the Commis-
sioner of Insurance.*

CAPITAL.

Amount of Capital paid in,	-	-	-	\$500,000.00
Accumulations and Balances treated as Assets,	-	-	-	255,057.77
Whole amount of Assets,	-	-	-	<u>\$755,057.77</u>

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$16,119.34
Real Estate owned by the Company,	-	-	-	-
Loans on Real Estate,	-	-	-	203,660.00
Loans on Collaterals,	-	-	-	29,800.00
Invested in Bank Stocks,	-	-	-	-
Invested in State, City, Town and County Securities,	-	-	-	24,200.00
Invested in United States Securities,	-	-	-	359,540.00
Invested in other Stocks, Bonds and Securities,	-	-	-	-
Deferred Premiums treated as Assets,	-	-	-	-
Commuted Commissions treated as Assets,	-	-	-	-
Premium Notes treated as Assets,	-	-	-	-
Due from Agents, and Premiums due, treated as Assets,	-	-	-	45,871.03
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	} 75,867.40
All other Assets treated as Assets,	-	-	-	
				<u>\$755,057.77</u>

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$38,144.37
Losses and Claims resisted,	-	-	-	-
Losses not acted upon,	-	-	-	17,518.00
Dividends payable,	-	-	-	655.50
Capital Stock,	-	-	-	500,000.00
All other Liabilities,	-	-	-	30,662.68
Gross Liabilities,	-	-	-	<u>\$586,980.55</u>

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$499,381.43
Amount at Risk,	-	-	-	\$50,754,200.00
Received for Premiums in 1866,	-	-	-	527,000.00

B. W. BLEECKER, *Secretary.*

JAS W. OTIS, *President.*

Attorney, CHAS. ROBINSON, New Haven.

*Statement of the Peoples Fire Insurance Company, Worcester, Mass.,
as condensed from their Reports to January 1, 1867, to the Commis-
sioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	233,877.51
<hr/>	
Whole amount of Assets, - - -	\$433,877.51

ASSETS.

Amount of Cash on Hand and in Banks,	-	-	-	12,954.41
Real Estate owned by the Company,	-	-	-	50,400.00
Loans on Real Estate,	-	-	-	57,520.00
Loans on Collaterals,	-	-	-	17,650.00
Invested in Bank Stocks,	-	-	-	45,335.00
Invested in State, City, Town and County Securities,				20,750.00
Invested in United States Securities,	-	-		130,806.00
Invested in Other Stocks, Bonds and Securities,	-			84,850.00
Deferred Premiums treated as Assets,	-	-		
Commuted Commissions, treated as Assets,	-	-		
Premium Notes, treated as Assets,	-	-		
Due from Agents, and Premiums due, treated as Assets,				204.65
Accrued Rents, Interest, &c., treated as Assets,	-			} 4,507.45
All other Assets, treated as Assets,	-	-		
				<hr/>
				\$433,877.51

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - - -	
Losses not acted upon, - - - -	
Dividends payable, - - - -	
Capital Stock, - - - -	\$200,000.00
All other Liabilities, - - - -	
<hr/>	
Gross Liabilities, - - - -	\$200,000.00

REMARKS.

Amount of Losses paid in 1866, - - -	\$162,201.75
Amount at Risk, - - - -	\$20,792,000.00
Premiums Received in 1866, - - -	\$282,725.00

A. N. CURRIER, *Secretary.* HENRY CHAPIN, *President.*
Attorney, A. N. CRANDALL, Norwich.

*Statement of the Phoenix Fire and Marine Insurance Company,
Brooklyn, N. J., as condensed from their Reports to January 1,
1867, to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$1,000,000.00
Accumulations and Balances treated as Assets, -	666,544.88
<hr/>	
Whole amount of Assets, - - -	\$1,666,544.88

ASSETS.

Amount of Cash on hand and in Banks, - -	\$104,070.38
Estate owned by the Company, - - -	106,955.86
Loans on Real Estate, - - -	272,401.29
Loans on Collaterals, - - -	85,625.00
Invested in Bank Stocks, - - -	
Invested in State, City, Town and County Securities, -	} 613,305.24
Invested in United States Securities, -	
Invested in Other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - -	
Commuted Commissions, treated as Assets, -	
Premium Notes, treated as Assets, - - -	329,695.84
Due from Agents, and Premiums due, treated as Assets, -	130,727.97
Accrued Rents, Interest, &c., treated as Assets, -	14,145.99
All other Assets, treated as Assets, - -	9,617.31
<hr/>	
	\$1,666,544.88

LIABILITIES.

Losses and Claims acknowledged, - - -	\$114,853.75
Losses and Claims resisted, - - -	-
Losses not acted upon, - - -	-
Dividends payable, - - -	-
Capital Stock, - - -	1,000,000.00
All other Liabilities, - - -	3,500.00
<hr/>	
Gross Liabilities, - - -	\$1,118,353.75

REMARKS.

Amount of Losses paid in 1866, - - -	\$1,457,090.77
Amount at Risk, - - -	\$81,424,900.00
Premiums, received in 1866, - - -	\$1,659,500.00

PHILANDER SHAW, *Secretary.* STEPHEN CROWELL, *President.*

Attorney, C. C. KIMBALL, Hartford.

*Statement of the Providence Washington Fire Insurance Company,
Providence R. I., as condensed from their Reports to January 1,
1867, to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	143,575.00
<hr/>	
Whole amount of Assets, - - -	\$343,575.00

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$ 6,428.21
Real Estate owned by the Company, - - -	157,800.00
Loans on Real Estate, - - -	-
Loans on Collaterals, - - -	-
Invested in Bank Stocks, - - -	33,600.00
Invested in State, City, Town and County Securities, -	110,000.00
Invested in United States Securities, - - -	21,300.00
Invested in Other Stocks, Bonds and Securities, -	-
Deferred Premiums treated as Assets, - - -	-
Commuted Commissions, treated as Assets, - - -	-
Premium Notes, treated as Assets, - - -	-
Due from Agents, and Premiums due, treated as Assets, -	5,821.79
Accrued Rents, Interest, &c., treated as Assets, -	7,625.00
All other Assets, treated as Assets, - - -	1,000.00
<hr/>	
	\$343,575.00

LIABILITIES.

Losses and Claims acknowledged, - - -	\$10,004.23
Losses and Claims resisted, - - -	-
Losses not acted upon, - - -	8,527.24
Dividends payable, - - -	238.00
Capital Stock, - - -	200,000.00
All other Liabilities, - - -	11,200.00
<hr/>	
Gross Liabilities, - - -	\$229,969.47

REMARKS.

Amount of Losses paid in 1866, - - -	\$130,956.74
Amount at risk, - - -	\$13,610,000.00

WARREN S. GREENE, *Secretary.* JOHN KINGSBURY, *President.*
Attorney, WM. E. BAKER, Hartford.

Statement of the Quincy Mutual Fire Insurance Company, Quincy, Mass., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	None.
Accumulations and Balances treated as Assets, -	\$209,593.56
<hr/>	
Whole amount of Assets, - - -	\$209,593.56

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$11,397.49
Real Estate owned by the Company,	-	-	-	2,746.28
Loans on Real Estate,	-	-	-	30,904.50
Loans on Collaterals,	-	-	-	26,000.00
Invested in Bank Stocks,	-	-	-	52,653.33
Invested in State, City, Town and County Securities,				24,800.00
Invested in United States Securities,	-	-		44,984.00
Invested in Other Stocks, Bonds and Securities,	-			
Deferred Premiums treated as Assets,	-	-		
Commuted Commissions treated as Assets,	-			
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,				12,357.96
Accrued Rents, Interest, &c., treated as Assets,			-	} 3,750.00
All other Assets, treated as Assets,	-	-		
				<hr/>
				\$209,593.56

LIABILITIES.

Losses and Claims acknowledged, - - -	\$3,450.00
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	
Dividends payable, - - -	
Capital Stock, - - -	
All other Liabilities, - - -	900.00
<hr/>	
Gross Liabilities, - - -	\$4,350.00

REMARKS.

Amount of Losses paid in 1866, - - -	\$32,330.00
Amount at Risk, - - -	\$20,100,000.00
Premiums Received in 1866, Notes, - -	\$97,330.00

CHAS. A. HOWLAND, *Secretary.* WM. S. MORTON, *President.*

Attorney, MARCUS DEFORD, Bridgeport.

Statement of the Republic Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	-	\$300,000.00
Accumulations and Balances treated as Assets, -	-	284,737.76
		<hr/>
Whole amount of Assets, - - -	-	\$584,737.76

ASSETS.

Amount of Cash on hand and in Banks, - - -	-	\$19,116.45
Real Estate owned by the Company, - - -	-	50,000.00
Loans on Real Estate, - - - - -	-	139,150.00
Loans on Collaterals, - - - - -	-	11,100.00
Invested in Bank Stocks, - - - - -	-	36,840.00
Invested in State, City, Town and County Securities, - - -	-	
Invested in United States Securities, - - -	-	294,218.75
Invested in other Stocks, Bonds and Securities, - - -	-	
Deferred Premiums treated as Assets, - - -	-	
Commuted Commissions treated as Assets, - - -	-	
Premium Notes treated as Assets, - - -	-	8,900.08
Due from Agents, and Premiums due, treated as Assets, - - -	-	19,913.40
Accrued Rents, Interest, &c., treated as Assets, - - -	-	
All other Assets, treated as Assets, - - -	-	5,499.08
		<hr/>
		\$584,737.76

LIABILITIES.

Losses and Claims acknowledged, - - -	-	\$30,139.48
Losses and Claims resisted, - - - - -	-	
Losses not acted upon, - - - - -	-	11,320.64
Dividends payable - - - - -	-	
Capital Stock, - - - - -	-	200,000.00
All other Liabilities, - - - - -	-	
		<hr/>
Gross Liabilities, - - - - -	-	\$241,460.12

REMARKS.

Amount of Losses paid in 1866, - - -	-	\$204,439.67
Amount at Risk, - - - - -	-	\$21,535,400.00
Received for Premiums in 1866, - - -	-	\$377,500.00

DUNCAN F. CURRY, *Secretary.* ROBERT S. HOWE, *President.*

Attorney, E. FULLER, Norwich.

Statement of the Resolute Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	\$200,000.00
Accumulations and Balances treated as Assets, -	75,818.52
<hr/>	
Whole amount of Assets, - - -	\$275,818.52

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$28,369.90
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	48,500.00
Loans on Collaterals,	-	-	-	20,000.00
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,				
Invested in United States Securities,	-	-	-	158,858.75
Invested in other Stocks, Bonds and Securities,	-			
Deferred Premiums treated as Assets,	-		-	
Commuted Commissions treated as Assets,	-		-	
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,				
Accrued Rents, Interest, &c., treated as Assets,	-			20,090.58
All other Assets treated as Assets,	-	-		
				<hr/>
				\$275,818.58

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	\$17,552.89
Dividends payable, - - -	
Capital Stock, - - -	200,000.00
All other Liabilities, - - -	3,067.93
<hr/>	
Gross Liabilities, - - -	\$220,620.82

REMARKS.

Amount of Losses paid in 1866, - - -	\$150,709.91
Amount at Risk, - - -	\$14,366.200.00
Premiums received in 1866, - - -	\$220,777.00

WM. M. RANDELL, *Secretary.*

J. E. UHLHORN, *President.*

Attorney, JUDAH FRISBIE, New Haven,

Statement of the Roger Williams Fire Insurance Company, Providence, R. I., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	\$100,000.00
Accumulations and Balances treated as Assets,	-	-	-	65,925.06
Whole amount of Assets,				\$165,925.06

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$6,561.69
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	
Loans on Collaterals,	-	-	-	
Invested in Bank Stocks,	-	-	-	143,380.00
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	
Invested in Other Stocks, Bonds and Securities,	-	-	-	
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	5,993.50
Due from Agents, and Premiums due, treated as Assets,	-	-	-	6,714.87
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	} 3,275.00
All other Assets, treated as Assets,	-	-	-	
				\$165,925.06

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$5,235.58
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	8,710.00
Dividends payable,	-	-	-	340.00
Capital Stock,	-	-	-	100,000.00
All other Liabilities,	-	-	-	15,987.53
Gross Liabilities,				\$130,223.11

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$50,438.49
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J. W. DAVENPORT, *Secretary.* C. B. MANCHESTER, *President.*

Attorney, A. N. CRANDALL, Norwich.

Statement of the Security Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	- \$1,000,000.00
Accumulations and Balances treated as Assets,	421,325.39
<hr/>	
Whole amount of Assets, - - -	\$1,421,325.39

ASSETS.

Amount of Cash on hand and in Banks, - - -	\$28,272.94
Real Estate owned by the Company, - - -	-
Loans on Real Estate, - - - - -	498,184.00
Loans on Collaterals, - - - - -	106,300.00
Invested in Bank Stocks, - - - - -	-
Invested in State, City, Town and County Securities,	99,810.00
Invested in United States Securities, - - -	281,562.50
Invested in Other Stocks, Bonds and Securities, -	-
Deferred Premiums treated as Assets, - - -	-
Commuted Commissions treated as Assets, - - -	-
Premium Notes treated as Assets, - - - - -	54,966.81
Due from Agents, and Premiums due, treated as Assets,	171,348.95
Accrued Rents, Interest, &c., treated as Assets, -	-
All other Assets, treated as Assets, - - -	180,880.19
<hr/>	
	\$1,421,325.39

LIABILITIES.

Losses and Claims acknowledged, - - -	-
Losses and Claims resisted, - - - - -	-
Losses not acted upon, - - - - -	\$141,250.58
Dividends payable, - - - - -	-
Capital Stock, - - - - -	1,000,000.00
All other Liabilities, Scrip, Dividends, &c., -	17,706.41
<hr/>	
Gross Liabilities, - - - - -	\$1,158,956.99

REMARKS.

Amount of Losses paid in 1866, - - -	\$1,019,517.80
Amount at Risk, - - - - -	\$67,220,000.00
Premiums Received in 1866, - - - - -	\$1,360,000.00

FRANK W. BALLARD, *Secretary.* A. F. HASTINGS, *President.*

Attorney, WM. WALLACE, Hartford.

*Statement of the Springfield Fire and Marine Insurance Company,
Springfield, Mass, as condensed from their Reports to January 1,
1867, to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in,	-	-	-	\$500,000.00
Accumulations and Balances treated as Assets,	-	-	-	210,519.44
				<hr/>
Whole amount of Assets,	-	-	-	\$710,519.44

ASSETS.

Amount of Cash on hand and in Banks,	-	-	-	\$23,615.56
Real Estate owned by the Company,	-	-	-	60,000.00
Loans on Real Estate,	-	-	-	106,363.33
Loans on Collaterals,	-	-	-	49,091.67
Invested in Bank Stocks,	-	-	-	147,331.25
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	132,375.00
Invested in other Stocks, Bonds and Securities,	-	-	-	139,628.50
Deferred Premiums treated as Assets,	-	-	-	
Commuted Commissions treated as Assets,	-	-	-	
Premium Notes treated as Assets,	-	-	-	
Due from Agents, and Premiums due, treated as Assets,	-	-	-	39,525.00
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	
All other Assets treated as Assets,	-	-	-	12,589.13
				<hr/>
				\$710,519.44

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses and Claims resisted,	-	-	-	
Losses not acted upon,	-	-	-	\$39,053.13
Dividends payable,	-	-	-	
Capital Stock,	-	-	-	500,000.00
All other Liabilities,	-	-	-	2,500.00
				<hr/>
Gross Liabilities, -	-	-	-	\$541,553.13

REMARKS.

Amount of Losses paid in 1866,	-	-	-	\$424,000.00
Amount at Risk, -	-	-	-	\$36,100,300.00
Premiums received in 1866, -	-	-	-	\$343,000.00

J. N. DUNHAM, *Secretary.*

E. FREEMAN, *President.*

Attorney, H. L. CANNON, New Haven.

Statement of the Tradesmen's Fire Insurance Company, New York, as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in, - - -	-	\$150,000.00
Accumulations and Balances treated as Assets, -	-	92,377.97
Whole amount of Assets, - -		<hr/> \$242,377.97

ASSETS.

Amount of Cash on hand and in Banks, - -	-	\$11,691.90
Real Estate owned by the Company, - -	-	-
Loans on Real Estate, - - - -	-	94,750.00
Loans on Collaterals, - - - -	-	-
Invested in Bank Stocks, - - - -	-	4,375.00
Invested in State, City, Town and County Securities, -	-	5,400.00
Invested in United States Securities, - -	-	105,746.00
Invested in other Stocks, Bonds and Securities, -	-	-
Deferred Premiums treated as Assets, - -	-	-
Commuted Commissions treated as Assets, - -	-	-
Premium Notes treated as Assets, - - -	-	-
Due from Agents, and Premiums due, treated as Assets, -	-	2,788.46
Accrued Interest, Rents, &c., treated as Assets, -	-	-
All other Assets treated as Assets, - - -	-	17,626.61
		<hr/> \$242,377.97

LIABILITIES.

Losses and Claims acknowledged, - - -	-	\$18,673.82
Losses and Claims resisted, - - - -	-	-
Losses not acted upon, - - - -	-	-
Dividends payable, - - - -	-	300.00
Capital Stock, - - - -	-	150,000.00
All other Liabilities, - - - -	-	1,477.00
Gross Liabilities, - - - -		<hr/> \$170,450.82

REMARKS.

Amount of Losses paid in 1866, - - -	-	\$99,040.50
Amount at Risk, - - - -	-	\$17,789,000.00
Received for Premiums in 1866, - - -	-	\$171,202.00

TIMOTHY Y. BROWN, *Secretary.* DAVID B. KEELER, *President.*

Attorney, GEO. S. LESTER, New Haven.

Statement of the Westchester County Mutual Fire Insurance Company, New Rochelle, N. Y., as condensed from their Reports to January 1, 1867, to the Commissioner of Insurance.

CAPITAL.

Amount of Capital paid in,	-	-	-	None.
Accumulations and Balances treated as Assets,	-	-	-	239,602.79
				<hr/>
Whole amount of Assets,	-	-	-	\$239,602.79

ASSETS.

Amount of Cash on hand and in Bank,	-	-	-	\$11,207.11
Real Estate owned by the Company,	-	-	-	5,000.00
Loans on Real Estate,	-	-	-	61,500.00
Loans on Collaterals,	-	-	-	-
Invested in Bank Stocks,	-	-	-	-
Invested in State, City, Town and County Securities,	-	-	-	37,200.00
Invested in United States Securities,	-	-	-	26,280.00
Invested in Other Stocks, Bonds and Securities,	-	-	-	-
Deferred Premiums treated as Assets,	-	-	-	-
Commuted Commissions, treated as Assets,	-	-	-	-
Premium Notes, treated as Assets,	-	-	-	88,945.86
Due from Agents, and Premiums due, treated as Assets,	-	-	-	3,708.14
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	-
All other Assets, treated as Assets,	-	-	-	5,761.68
				<hr/>
				\$239,602.79

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	\$
Losses and Claims resisted,	-	-	-	-
Losses not acted upon,	-	-	-	2,600.00
Dividends payable,	-	-	-	-
Capital Stock,	-	-	-	-
All other Liabilities,	-	-	-	-
				<hr/>
Gross Liabilities,	-	-	-	\$2,600.00

REMARKS.

Amount of Losses paid in 1866,	-	-	\$400.00
GEO. R. CRAWFORD, <i>Secretary.</i>	GEO. J. PENFIELD, <i>President.</i>		
<i>Attorney, M. DEFOREST, Bridgeport.</i>			

*Statement of the Western Fire Insurance Company, Buffalo, N. Y.,
as condensed by their Reports to January 1, 1867, to the Com-
missioner of Insurance.*

CAPITAL.

Amount of Capital paid in,	-	-	-	\$300,000.00
Accumulations and Balances treated as Assets,	-	-	-	202,026.06
Whole amount of Assets,				\$502,026.06

ASSETS.

Amount of Cash on hand in Banks,	-	-	-	\$70,936.11
Real Estate owned by the Company,	-	-	-	
Loans on Real Estate,	-	-	-	87,644.49
Loans on Collaterals,	-	-	-	39,100.00
Invested in Bank Stocks,	-	-	-	
Invested in State, City, Town and County Securities,	-	-	-	
Invested in United States Securities,	-	-	-	184,000.00
Invested in other Stocks, Bonds and Securities,	-	-	-	67,600.00
Premiums treated as Assets,	-	-	-	7,030.22
Commuted Commissions, treated as Assets,	-	-	-	
Premium Notes, treated as Assets,	-	-	-	9,132.44
Due from Agents, and Premiums due, treated as Assets,	-	-	-	21,505.94
Accrued Rents, Interest, &c., treated as Assets,	-	-	-	3,119.53
All other Assets, treated as Assets,	-	-	-	7,770.99
Due from other Companies,	-	-	-	4,186.34
				\$502,026.06

LIABILITIES.

Losses and Claims acknowledged,	-	-	-	
Losses and Claims resisted,	-	-	-	\$21,000.00
Losses not acted upon,	-	-	-	
Dividends payable,	-	-	-	
Capital Stock,	-	-	-	\$300,000.00
All other Liabilities,	-	-	-	2,348.10
Gross Liabilities,				\$323,348.10

REMARKS.

Amount of Losses paid in 1866,	-	-	\$215,016.00
Received for Premiums in 1866,	-	-	\$413,289.53

EDWARD B. SMITH, *Secretary.*

G. T. WILLIAMS, *President.*

Attorney, H. L. CANNON, New Haven.

*Statement of the Yonkers and New York Fire Insurance Company,
New York, as condensed from their Reports to January 1, 1867,
to the Commissioner of Insurance.*

CAPITAL.

Amount of Capital paid in, - - -	\$500,000.00
Accumulations and Balances treated as Assets, -	119,945.24
<hr/>	
Whole amount of Assets, - - -	\$619,945.24

ASSETS.

Amount of Cash on hand and in Banks, - -	\$25,404.58
Real Estate owned by the Company, - -	
Loans on Real Estate, - - -	153,000.00
Loans on Collaterals, - - -	2,500.00
Invested in Bank Stocks, - - -	
Invested in State, City, Town and County Securities, -	62,550.00
Invested in United States Securities, - -	331,175.00
Invested in other Stocks, Bonds and Securities, -	
Deferred Premiums treated as Assets, - -	
Commuted Commissions treated as Assets, - -	
Premium Notes treated as Assets, - - -	
Due from Agents, and Premiums due, treated as Assets, -	20,000.00
Accrued Rents, Interest, &c., treated as Assets, -	
All other Assets treated as Assets, - - -	25,315.66
<hr/>	
	\$619,945.24

LIABILITIES.

Losses and Claims acknowledged, - - -	
Losses and Claims resisted, - - -	
Losses not acted upon, - - -	15,000.00
Dividends payable, - - -	
Capital Stock, - - -	500,000.00
All other Liabilities, - - -	
<hr/>	
Gross Liabilities, - - -	\$515,000.00

REMARKS.

Amount of Losses paid in 1866, - - -	\$267,466.14
Amount at Risk, - - -	\$27,218,300.00
Premiums received in 1866, - - -	\$325,100.00

JOHN W. MURRAY, *Secretary.* RICHARD L. FRANKLIN, *President.*
Attorney, H. L. CANNON, New Haven.

The foregoing brief statements of the condition of the Insurance Companies incorporated by other States, and transacting business in this State, have been carefully prepared, and are believed to be correct ; they have been very prompt to furnish their reports, and to make explanations when called for, and it is believed that they, like similar Insurance Companies incorporated by this State, are managed with integrity and ability.

Your Commissioner will exercise care in admitting others into the State, and endeavor to protect the public in cases of disasters or changes, which will impair their ability to meet the demands of the laws or of their patrons.

BENJAMIN NOYES,

Commissioner of Insurance.

New Haven, May Session, 1867.

REPORT

17

OF THE

BOARD OF EQUALIZATION,

TO THE

GENERAL ASSEMBLY,

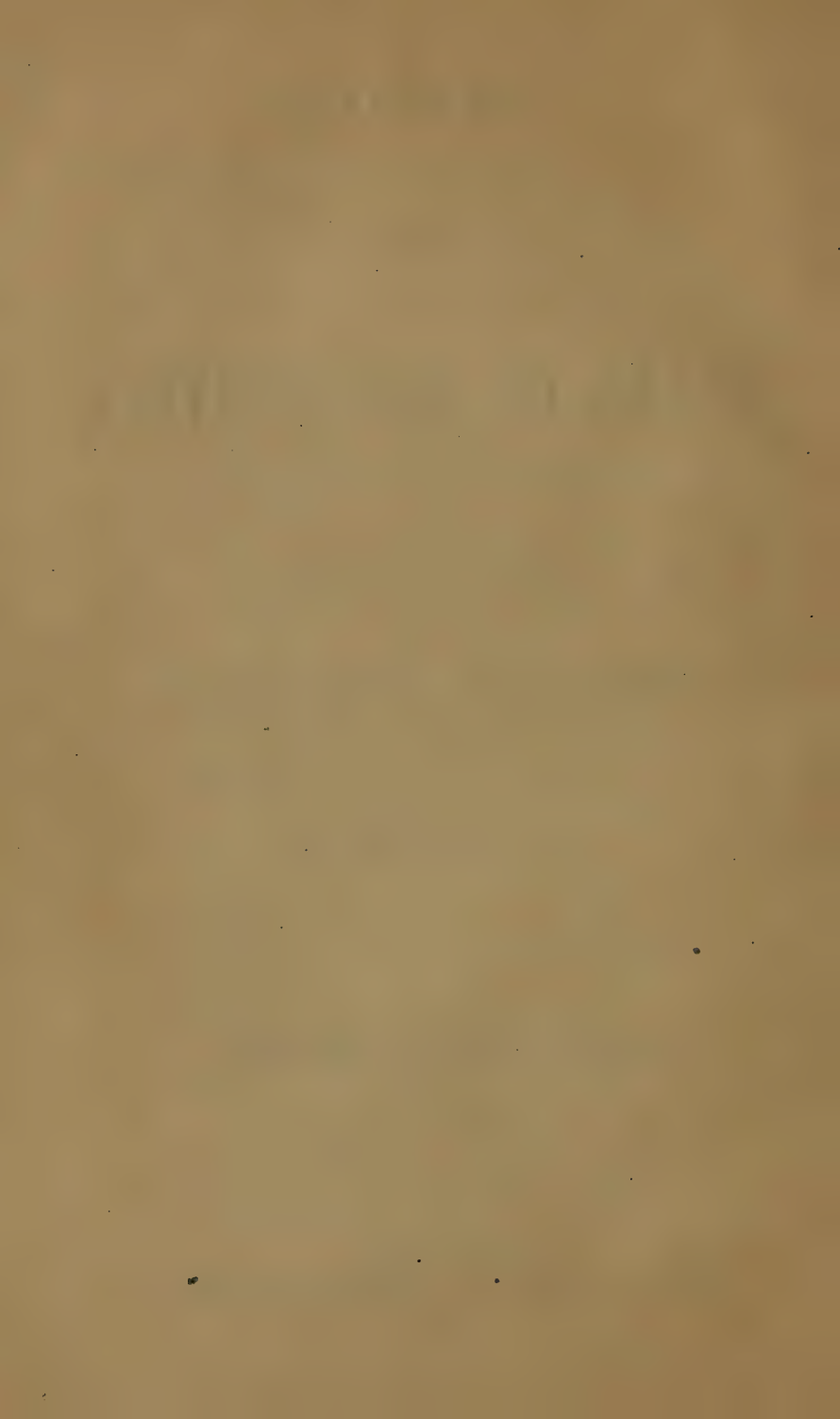
MAY SESSION, 1867.

Printed by order of the Legislature.

HARTFORD:

CASE, LOCKWOOD AND COMPANY, PRINTERS.

1867.



REPORT

OF THE

BOARD OF EQUALIZATION.

At a meeting of the Board of Equalization held at Hartford, April 3, 1867, for the purpose of equalizing the Lists of the several Towns of the State of Connecticut,—

The following additions and deductions to the several lists were made, and adopted as the action of said Board.

1st SENATORIAL DISTRICT.						Deductions.	Additions.
Hartford,	add	on	all	property	valued by Assessors,		\$237,375
Wethersfi'd,	"	"	"	"	"		418,000
Berlin,	"	"	"	"	"		163,000
Southington,	"	"	"	"	"		148,000
New Britain,	"	"	"	"	"		439,000
Rocky Hill,	"	"	"	"	"		68,000
W.Hartford,	"	"	"	"	"		56,000
2d DISTRICT.							
Enfield,	add	on	Houses,	Land,	Horses and Cattle		26,559
Suffield,	"	"	"	"	"		40,057
E.Windsor,	"	"	"	"	"		99,094
E.Hartford,	"	"	"	"	"		39,988
Glastenbury,	add	"	"	"	"		94,063
Marlborough,	deduct	"	"	"	"	\$14,219	
Manchester,	add	"	"	"	"		41,204
S. Windsor,	"	"	"	"	"		89,631
3d DISTRICT.							
Hartland,	deduct	on	Real Estate	and	Sheep,	35,966	
Granby,	add	on	Real Estate,	\$94,780,	Mills and		
Stores,	\$2,000.	Farming	Utensils,	\$500.	Horses,		
\$500,	-	-	-	-	-		97,780

	Deductions.	Additions.
East Granby, add on Real Estate, - - -		\$16,819
Simsbury, add on Real Estate, \$28,352. Horses, \$3,000. Cattle, \$815. Sheep, \$5,00. Manu- facturing, \$40,000, - - - - -		72,667
Windsor, add on Real Estate, \$53,760. Manu- facturing, \$16,200, - - - - -		69,960
Canton, add on Real Estate, - - - - -		18,900
Farmington, deduct on Real Estate, - - -	60,600	
Bristol, - - - - -		
Burlington, deduct real estate, - - -	12,680	
Avon, add on Real Estate, \$44,085. Cattle, \$4,500. Farming Utensils and Manufacturing, \$2,300		50,885
Bloomfield, add on Real Estate, \$115,980. Cattle, \$10,007. Farm Utensils, \$500. Furniture, \$500. Horses, \$2,455, - - - - -		129,442
Windsor Locks, add on Neat Cattle, \$5,424, Manufacturing, \$25,000, - - - - -		30,424
4th DISTRICT.		
New Haven, - - - - -		
Hamden, add on Houses, - - - - -		29,571
Woodbridge, add on " - - - - -		10,734
5th DISTRICT.		
Milford, add on Neat Cattle, - - - - -		5,023
Orange, add on Manufacturing Stock, \$8,000. Farming Utensils, \$700, - - - - -		8,700
Derby, - - - - -		
Oxford, add on Sheep and Swine, - - - - -		1,047
Middlebury, add on Land and Horses, - - -		27,650
Waterbury, - - - - -		
Bethany, - - - - -		
Wolcott, - - - - -		
Southbury, - - - - -		
Naugatuck, - - - - -		
Seymour, - - - - -		
6th DISTRICT.		
Guilford, add on Houses, Land, Horses & Neat Cattle		54,605
Branford, " " " " "		53,260
N. Branford, add " " " " "		34,017
East Haven, " " " " "		79,901
North Haven, " " " " "		35,322
Madison, " " " " "		37,240
Wallingford, " " " " "		76,798
Meriden, " " " " "		143,352
Cheshire, " " " " "		66,440
Prospect, " " " " "		13,753

7th DISTRICT.						Deductions.	Additions.
New London, deduct on Real Estate, Houses,							
Horses and Cattle, - - - - -						\$773,644	
Groton, add the legal 10 per cent. on							
\$1,073,788, - - - - -					\$107,378		
Deduct on Houses, Land, Horses							
and Cattle, - - - - -					37,028		\$70,350
Ledyard, add on Houses, Land, Horses and Cattle,							33,287
Stonington, deduct on Houses, Land, Horses and							
Cattle, - - - - -						41,111	
Waterford, add on Houses, Land, Horses and Cat-							
tle, and 10 per ct. on one-half amount of list,							173,770
8th DISTRICT.							
Norwich, deduct on Houses, Land, Horses & Cattle						242,658	
North Stonington, add on Houses, Land, Horses							
and Cattle, - - - - -							14,108
Preston, deduct on Houses, Land, Horses and							
Cattle, - - - - -					\$72,932		
Add 10 per ct., - - - - -					6,822	66,110	
Griswold, deduct on Houses, Land, Horses & Cattle						33,393	
Lisbon, " " " " "						11,508	
Sprague, " " " " "						14,294	
Franklin, add " " " " "							9,726
9th DISTRICT.							
Lyme, add on Houses and Lands, - - - - -							20,000
Colchester, - - - - -							
Lebanon, add on Real Estate, - - - - -							100,000
Montville, deduct on Land, \$40,000, on Manufac-							
turing, \$40,000, - - - - -						80,000	
Salem, - - - - -							
Bozrah, add on Manufacturing, - - - - -							20,000
East Lyme, - - - - -							
Old Lyme, - - - - -							
10th DISTRICT.							
Fairfield,							
Bridgeport,							
Stratford,							
Huntington,							
Weston,							
Trumbull, add on houses and land, - - - - -							85,631
Monroe, add on houses, - - - - -							41,498
Westport,							
Easton, add on horses, - - - - -							2,473

11th DISTRICT.				Deductions.	Additions.
Danbury,					
Bethel, add on real estate,	-	-	-	-	5,000
Ridgefield, add on "	-	-	-	-	10,000
Redding, " 10 per cent. \$20,008.	Deduct on				
real estate, \$10,000,	-	-	-	-	10,008
Newtown,					
Brookfield, add on land and cattle, \$4,000, 10					
per ct. \$3,425,	-	-	-	-	7,425
New Fairfield, add on neat cattle,	-	-			3,000
Sherman, add on land, \$4,000, neat cattle, \$2,000,					6,000
12th DISTRICT.					
Norwalk, deduct on houses, lands, and lists in					
twice,	-	-	-	-	\$294,415
Darien, " " houses and lands,	-	-			126,251
Stamford, " " houses,	-	-	-	-	107,459
Greenwich, Add on houses,	-	-			80,428
New Canaan, " " houses and lands,	-	-			86,030
Wilton, " " " " " "	-	-			80,931
13th DISTRICT.					
Brooklyn,					
Canterbury,					
Hampton,					
Plainfield,					
Sterling, deduct on land, houses, horses and cattle,				28,270	
Voluntown, " " " " " " "				29,545	
Windham,					
Chaplin,					
Scotland,					
14th DISTRICT.					
Ashford,					
Eastford,					
Killingly,					
Pomfret,					
Putnam,					
Thompson,					
Woodstock, add on houses, lands, horses and					
cattle,	-	-	-	-	98,232
15th DISTRICT.					
Litchfield, deduct on land, \$45,115, on neat cattle,					
\$18,135,	-	-	-	-	63,250

	Deductions.	Additions.
Harwinton, add on houses \$24,200, on horses \$4,340, cattle, \$16,990, - - - -		\$45,530
New Hartford, - - - - -		
Torrington, add on neat cattle, \$7,668, manufacturing, \$25,000, - - - - -		32,668
Winchester,		
Barkhamsted, add on houses, \$14,100, horses, \$1,407, cattle, \$4,921, - - - -		20,428
Colebrook, add on neat cattle, - - -		2,540
Morris,		
16th DISTRICT.		
New Milford, add on real estate, - - -		15,000
Bridgewater,		
Warren,		
Washington, add on real estate, - - -		10,000
Roxbury, " " " - - - -		5,000
Bethlehem, " " " - - - -		15,000
Woodbury,		
Watertown,		
Plymouth, add on real estate, - - -		10,000
17th DISTRICT.		
Salisbury,		
Canaan, add on land, \$15,000, cattle, \$2,000, other property, \$3,000, - - - -		20,000
North Canaan, deduct on houses, - - -	10,000	
Norfolk, add on real estate, - - - -		50,000
Sharon, " " " - - - -		10,000
Cornwall, " " houses, \$40,000, cattle, \$15,000, Goshen,		55,000
Kent, " " real estate, \$48,000, horses, \$2,000,		50,000
18th DISTRICT.		
Middletown, add on houses, land and neat cattle, Cromwell,		176,000
Durham, add on real estate, - - - -		37,000
Chatham,		
Portland, add on quarries, \$185,000, furniture, \$15,000, - - - -		200,000
Middlefield, add on land, \$22,000, horses and cattle, \$8,000, - - - -		30,000
19th DISTRICT.		
Haddam, add on houses, \$16,465, cattle, \$7,635,		24,100
Chester " " land, \$14,168, cattle, \$2,952, -		17,150
Clinton,		

	Drductions.	Additions.
East Haddam, add on land, \$60,032, houses,		
\$22,468, cattle, \$15,060, - - - -		\$97,560
Killingworth, add on houses, - - - -		18,395
Saybrook,		
Essex,		
Westbrook, deduct on land, \$15,528, cattle, \$3,465,	\$18,993	
Old Saybrook, deduct on houses, - - - -	21,918	
20th DISTRICT.		
Tolland,		
Ellington,		
Somers,		
Stafford,		
Union,		
Willington, deduct on houses, lands, horses and		
cattle, - - - - - - - -	76,000	
21st DISTRICT.		
Andover,		
Bolton,		
Coventry,		
Columbia,		
Hebron,		
Mansfield,		
Vernon,		

The undersigned, being members of the Board of Equalization, for the year 1867, have attended to the duties to which we were assigned, and have made and agreed upon the above and foregoing alterations in the List of the several towns as stated in this report, which has just been read and accepted.

LEMAN W. CUTLER,	Comptroller.
HENRY G. TAINTOR,	Treasurer.
WILLIAM BENTON, JR.,	1st District.
AHOLIAB JOHNSON,	2d "
HENRY W. ENSIGN,	3d "
A. L. KIDSTON,	4th "
I. T. ROGERS,	5th "
HENRY FOWLER, 2D,	6th "
NATHAN S. FISH,	7th "
E. B. ALLEN,	8th "
D. L. BROWNING,	9th "
WILLIAM A. JUDSON,	10th . "
ZERAH FAIRMAN,	11th "
A. E. BEARD,	12th "
D. GREENSLIT,	13th "
GEO. B. MATTHEWSON,	14th "
NELSON ROBERTS,	15th "
HENRY MINOR,	16th "
NELSON M. BROWN,	17th "
JAS. E. LATHROP,	18th "
SMITH VENTRIS,	19th "
MARCUS WOODWARD,	20th "
ERASTUS KINGSBURY,	21st "

HARTFORD, April 5th, A. D. 1867.

REPORT
OF THE
COMMISSIONERS
CONCERNING THE PROTECTION OF FISH
IN THE
CONNECTICUT RIVER, &C.
TO THE
GENERAL ASSEMBLY,
MAY SESSION, 1867.

Printed by Order of the Legislature.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS
1867.

REPORT OF FISH COMMISSIONERS.

GENERAL ASSEMBLY, MAY SESSION, 1867.

IN accordance with a Resolution passed by the General Assembly, May Session, 1866, concerning "the Protection of Fish in the Connecticut River," &c., &c., the Commissioners beg leave respectfully to report:

The resolution states, that His Excellency the Governor be authorized to appoint two commissioners to consider the subjects;

1st. Of the protection of sea fish in the Connecticut River.

2d. The introduction of new varieties of fresh water fish.

3d. The protection of fish generally in our waters.

4th. To make report of such facts and suggestions as may be material to the next session of the Legislature.

5th. That such commissioners communicate with commissioners that are or may be appointed by the States of Vermont, Massachusetts, and New Hampshire, upon the subject of restoration of sea fish.

6th. That His Excellency the Governor be requested, to furnish the Governors of these States with a copy of this resolution.

The Commissioners propose to consider the requirements of this resolution in the order in which they are enumerated.

I.

"OF THE PROTECTION OF SEA FISH IN THE CONNECTICUT RIVER."

After careful investigation, the Commissioners are of the opinion that the present laws, with two important exceptions,

are sufficient for the proper protection of fish in the Connecticut River, but they find that many of the most important provisions and restrictions of the law are either imperfectly obeyed, or totally disregarded; for instance the law declares that, "No person shall take any shad or salmon in the Connecticut River at any other time than between the fifteenth day of March, and the twenty-fifth day of June, in each year, and within that period no person shall set or draw any seine for the purpose of taking fish in said River, or at any other time than between the rising of the sun on Monday morning and the setting of the sun on Saturday evening of each week. And every person who shall at any other time take away any shad or salmon, or set or draw any net or seine in said river, or aid or assist therein, shall forfeit the sum of one hundred dollars to the Treasury of the State." General Statutes, p. 461.

Now in violation and in defiance of these most reasonable provisions, fishing for shad in various ways commences as early as the first of March, and continues until the middle of July. The "close time" is nowhere respected, but fishing on the Lord's day is very generally practiced; this pernicious habit, contrary alike to the laws of God and man, has in the opinion of the commissioners much to do with the scarcity of fish in the Connecticut River.

In all countries and in every age, certain days have been set apart for the free and unobstructed passage of fish to their breeding grounds. In ancient times fishing for shad and salmon was only allowed for three days in each week; and this wise course, with other things, insured to the inhabitants along the river a cheap and abundant supply of delicious food, without perceptibly diminishing the yearly supply. In short, in the days when no dams, gill-nets or stake-nets obstructed the passage of the fish, and when fishing three days out of seven was the rule, so abundant was the supply of shad and salmon that they were actually used for manure. The Commissioners confidently believe, that by a proper course of legislation, together with the co-operation that has been pledged from the other New England States, this desirable abundance may be

once more obtained; thus enhancing the attractions, and adding vastly to the resources of our commonwealth. At the present time, however, contrary to all law and precedent, the fish are not allowed free passage to their spawning grounds, for a single day during their four breeding months. What other result can possibly follow from such a course than the entire extermination of fish from our waters?

Again, the law says, that "Every person who shall set, use or draw any drift, drag or gill net, or aid or assist in so doing in said river below a line directly across it from Lyme ferry wharf to Saybrook ferry wharf, or who shall set, use or draw any such drift, drag or gill net in Long Island Sound, within three miles easterly, southerly or westerly of a line drawn across said river due east from Saybrook Light House, shall pay a fine of fifty dollars to the Treasury of the County where the offence shall be committed, and every such drag, drift or gill net so set, used or drawn shall be deemed a common nuisance, and may be abated and destroyed as such." Statutes, p. 462. The Commissioners find upon investigation that not less than one hundred boats are constantly employed during the spring months at this locality in carrying on the business of gill-netting contrary to law, and that not satisfied with dragging the river itself, the fishermen are accustomed to follow the current of the stream as far as three miles into the sound; thus intercepting and cutting off the entrance of the fish into the river. From these facts it appears that the laws are less at fault than the execution of them; and hence it would seem advisable to provide for their more stringent enforcement. The two exceptional cases above referred to, which the present statutes do not reach are, first, drift, drag or gill nets, and second, stake nets, weirs or pounds. Both of these barbarous methods should be abolished for the following reasons:

1st. ON ACCOUNT OF THEIR DESTRUCTIVENESS, AND WANTON WASTE OF YOUNG FISH OF ALL DESCRIPTIONS.

In passing through the meshes of a gill-net, many fish are too small to be taken, and yet too large to pass easily through.

Caught in this dilemma, the shad in its struggle to escape is torn and mutilated, and being very delicate in its nature, soon dies, and is swept back into the Sound. Thus many thousands are yearly destroyed at the mouth of the river that otherwise would pass up to procreate their species. Again, the stake-nets, or pounds as they are called, take all kinds of fish, small and great; those that are large enough for market are sold for food, and the others are *used for manure*. Thus again thousands of young shad are wantonly destroyed.

2d. BECAUSE THEY DEPRIVE THE INHABITANTS OF THIS AND OTHER STATES THROUGH WHICH THE RIVER FLOWS OF THEIR JUST RIGHTS.

After their sojourn in the sea during the winter, it is the habit of shad every spring to seek the waters of the stream where they were bred. (All migratory fish and birds return home to breed.) In so doing they coast along from south to north near the shore in vast shoals, and as soon as they strike the current of their native stream they pass up. Taking advantage of this habit, stake-nets or pounds extend in a continuous line all along the shore of the Sound from Saybrook Point to Cornfield Point, a distance of about two miles. From each of these pounds nets upon stakes, called wings, extend out into the Sound, and as the great bulk of the shoals pass within the lines of these wings, the major part of the fish seeking the river is taken. Only the stragglers, who by chance run outside of the usual course, are permitted to ascend. And here again these are met by the gill-nets, that sweep in hundreds in a continuous line, following the current far out into the Sound, raking the stream as with a fine-tooth comb, and utterly depriving the fish of a fair chance.

Thus it will be seen that few fish, comparatively speaking, are allowed to ascend the river, to gladden the hearts of the legislators and the citizens of this and the other New England States. In proof of this we cite a single instance out of thousands that might be brought forward. During the last week in April of this year, a single pound at Cornfield Point took

eighteen hundred shad. During the same week, four men using two sweep-nets, the only nets proper to use in taking shad, near Middletown, thirty miles from the mouth of the river, took forty-two shad; the one averaging two hundred and fifty, and the other seven shad yer day. Now it should be borne in mind that if the shad are not permitted to ascend the river so as to be taken in a fair and legitimate manner at the various fish places along its course, the fish are altogether lost to the people of the New England States, because nineteen-twentieths of all the fish taken by gill-nets and pounds at the mouth of the river are sent to the New York markets. The effect, then, of gill-nets and stake-nets upon the inhabitants of this Commonwealth in general is:

1st. To cause a great scarcity of fish, thus depriving the people of much wholesome and delicious food.

2d. This very scarcity enhances their price, thus placing them beyond the reach of the great mass of the people, the poor laboring men. Shad, better than can be bought now, were formerly for sale in Hartford for ten and twenty cents each, now best ones bring a dollar. Salmon were formerly sold at six and twelve cents a pound, they now bring fifty cents and one dollar and fifty cents a pound. And

3rd. Fish that do get up the river, being mostly such as are able to pass through the gill nets are small and of an inferior quality. In view of the above facts we submit that our second reason for the abolition of gill and stake nets on the ground that they interfere with the just rights of the community at large, has been fully sustained. The chief aim of all legislation should be to insure the greatest good of the greatest number. It therefore seems almost incredible, that in this democratic age and country, such an extensive and unjust monopoly should have been so long tolerated by the great mass of the people.

The Commissioners would urge as a final reason for the abolition of stake and gill nets, THAT THEIR PERSISTENT USE WILL EVENTUALLY EXTERMINATE ALL KINDS OF FISH. Impassable dams have already driven the salmon from our rivers, but the shad being able to breed in deeper and more quiet water

—although not preferring so to do—still remain. The first of these dams was erected at the mouth of Miller's river, on the Connecticut, in 1798, and the second at Hadley's Falls in 1849. For a great number of years after these dams were built, abundance of shad were yearly caught all along the river below these obstructions.

Twenty years ago it was no uncommon occurrence to take from five hundred to a thousand shad at a single draft of the seine ; consequently the building of these dams cannot be said to have very materially lessened the number of shad. From that time to the present, the use of gill nets and stake nets at the mouth of the river has been constantly on the increase, and the shad have been exactly in the same proportion on the decrease until now, in 1867, as above stated, we find the average to be seven shad per day, at the same locality where twenty years ago it was no uncommon occurrence to land a thousand at a haul. This fact alone speaks volumes, and should cause the people of Connecticut to awake from the indifference in this matter, and hasten to abolish a practice so suicidal in its effects and so destructive to the best interests of the State. Indeed, there is no doubt but that shad would have long ago been exterminated by these destructive methods of fishing, were it not for two providential interferences, the one being the high freshets, which allow the shad to pass under the nets, and the other the immense shoals of white fish, which, appearing about the first of June, so twist, tear, and tangle the nets, as to make fishing for shad after their advent, altogether impracticable. In short the fisherman at the mouth of the river, may be very aptly likened unto Lord Bryon's Physician, Dr. Romoneli, and the poor shad and the poet, have the same epitaph,

“ Youth, nature and relenting Jove
To keep my lamp in strongly strove,
But Romoneli was so stout
He beat all three and blew it out.”

II.

THE INTRODUCTION OF NEW VARIETIES OF FRESH WATER FISH.

Black bass have been brought from northern lakes and

placed at private expense in Saltonstall Lake, near New Haven, in Hampton Roads at East Hampton, and in many other lakes and ponds throughout the State—particularly in the north-western part. We are informed by Mr. Buell, that those in Hampton Pond are growing finely and increasing rapidly. What the result has been in Saltonstall Lake, we are not informed. Many of the Litchfield County Lakes are well stocked. There is no doubt, however, but that through a small appropriation by the Legislature, all our lakes and rivers might be stocked with the different varieties of fish best adapted to and most likely to flourish in the various peculiarities and conditions of said waters. But inasmuch as this business is in a measure experimental, and being a novel idea to many of our people, may be considered by them as of doubtful expediency, the Commissioners have deemed it advisable for the present to confine their efforts wholly to the re-stocking of the Connecticut River with shad and salmon, which can be accomplished—upon certain conditions which will be stated hereafter—without any expense whatever to the State. The Commissioners are satisfied that the beneficial results arising from this re-stocking will be in a short time so apparent as to demand a complete and a systematic re-stocking of all our waters, regardless of expense.

III.

THE PROTECTION OF FISH GENERALLY.

Many alterations and additions might be suggested to the present fishery laws, that would prove beneficial, and such alterations and additions will be absolutely necessary whenever our lakes and ponds are systematically stocked with different varieties; and, whenever sea fish are to be introduced into the Thames, Housatonic, and the various tributaries of the Connecticut, it will be necessary to enact laws for the protection of the ova on the spawning beds, to regulate the size of meshes in seines, to prohibit fishing in certain ways and at certain seasons, also, to enact various provisions and restrictions incident upon the erection and maintenance of suitable fish ways, &c., &c. But, as suggested heretofore with

regard to the introduction of new varieties of fish, your Commissioners propose in like manner to let this portion of the subject rest for the present, lest it should in some manner interfere with or defeat the more important and urgent matter of re-stocking the Connecticut River, and the proper protection of the same.

IV.

“TO MAKE A REPORT OF SUCH FACTS AND SUGGESTIONS AS MAY BE MATERIAL TO THE NEXT SESSION OF THE LEGISLATURE.”

Under this head, the Commissioners beg leave to submit a number of instructive and interesting extracts from the able report of the Commissioners for Massachusetts, relative to the subject of re-stocking our rivers with shad and salmon, together with the habits and peculiarities of these fish, all showing that we may very easily have the same abundance of salmon in the beautiful waters of the Connecticut as we formerly had, and that we may check the constant diminution in numbers and deterioration in quality of that noble fish the shad, which attains its highest virtue only in our waters; subjects of vast pecuniary interest to us as well as matters of comfort, health and luxury.

We have quoted very liberally from the reports to the Massachusetts Legislature, as we have no where found so completely and concisely digested the matters appropriate to your consideration. The report is highly creditable to the industry and skill of Col. Theodore Lyman, and we regret that the length of our report forbids our citing largely from the admirable report to the Legislature of Vermont, made by Messrs. Hagar and Barrett. The Massachusetts report says:

“The shad (*Alosa praestabilis*) is one of the large species of herring that go each year, from the sea to fresh water, to deposit their spawn.

The alewife (*Alosa tyrannus*) is a smaller species, having the same habit. “The alewife,” says old Josselyn, “is like a herring, but has a bigger belly, therefore called an ALEWIFE.” From which it would appear, that the keepers of alehouses, two centuries ago, were for drinking of their own last brew-

ing. The shad is notable, not only for its natural abundance, but for the wide ocean province which it inhabits, for, while Cape Cod makes for many fishes the boundary between the inhabitants of the northern and southern waters, the shad seems equally to flourish in the latitude of Savannah or of the Gulf of St. Lawrence. The same is true of the European species (*Alosa vulgaris*) which is found on the coasts of Sweden, England, France and the Mediterranean countries. With the first indications of spring weather, these fish, driven by the resistless instinct of propagation, approach in vast shoals the mouths of the great rivers. They begin to run up the Savannah as early as Christmas. The Chowan, Roanoke, the Potomac, in February; the Delaware in the middle of, March; the Hudson, in early April; the Merrimack, in late April; and the Bay of Fundy in the middle of May. It is the theory of Professor Agassiz that they do not in one great army pass from south to north, parallel with the coast, turning in at the different rivers as they go; but that those inhabiting each river lie, during the winter season, in the deep water off its mouth, where they wait the return of the breeding time.* The theory corresponds with the pretty-well established fact, that this fish, as well as the salmon, *returns always to the river in which it was hatched*.

The advance of the migration up a river is by no means a simultaneous movement, but progresses in a series of "runs." The first run is of fish smaller and not so numerous as those of the grand run which follows. These small fish are probably the progeny of the tributary streams, whose waters are warmer than those of the main river, but do not furnish so nourishing food for the fry hatched in them. Thus, the Concord had shad that were earlier, although smaller, than the upper waters of the Merrimack. As the first shoals enter the river, a few individuals, in whom the ova are probably already mature, make haste to the upper spawning grounds. Shad are taken at the Trenton rapids a few days after their appearance at the mouth of the Delaware, one hundred and sixty

*Prof. Agassiz' theory is unsound. We have conversed with fishermen who stated, and doubtless correctly, that they had fished for Conn. River shad with success from the Delaware to the Connecticut in a single season, following the movements of the shoals.

miles distant. The main body, however, proceeds leisurely, and, while in tidal water, the fish even turn down stream at the flood. In pleasant weather they swim high, and sink to a lower stratum when the surface is ruffled by a cold east wind. After the great run, which may continue from ten days to three weeks, follows another scattered run; and it is a singular fact, that the spawn in the late fish is less developed than it was in the earlier ones. Once in their native river, there is little doubt that the companies proceed, each to its own spawning ground—some in tributaries, some in the main stream and some, even, in the lakes that communicate with it. With these elements of locality and distance, it is plain that the operation of spawning cannot be simultaneous for the whole of a river; on the contrary, it extends over several weeks, some fish being ready to deposit on their first advent, while the eggs of others are comparatively immature. The time of the return of the parent fish to the sea is not so accurately known as could be wished; but, after spawning in May and June, they doubtless pass down gradually, from the middle of June to the first of August, after which there are still to be found stragglers during September in the Merrimack, and late in October in the Connecticut. Meantime, the young of that season are growing rapidly; by the last of August or first of September, they have attained a length of three or four inches, and move down to the sea, (*see plate.*)

The length of life in the shad is a disputed point. Dr. Holwall thinks they get their full growth in a single year. Valenciennes inclines to the belief, that, in the European species, many individuals die after spawning, at the end of their first year. On the other hand, the investigations of Mr. U. S. Treat, of Eastport, show that the alewife gets its full growth only at the end of four years; and analogy might point to the belief that the closely allied shad had the same rate of development. Certain it is that there is a great difference in size among fish caught in the same river. In the Merrimack they range from three to eight pounds; in Maine rivers they attain to ten pounds, and in the Delaware they are caught as large as twelve pounds. These differences, however, may as well be due to food and locality as to age.

The salmon (*salmon salar*) is common to the northern waters of both America and Europe. From time immemorial it has been regarded as of the *haute noblesse* among fishes. It is at once the prey and the idol of the sportsman. Even the Indians appreciated its high price among noble game, and the men aroused themselves from their habitual sloth to pursue it, while they left the catching of shad and alewives to the women and children. In its habit of spawning in fresh water, it resembles the shad, but there the likeness ends. Active and fierce in disposition, fastidious in tastes, the salmon seeks the coldest, purest and most rapid streams that are to be found at the sources of the river it frequents. It comes from the sea nearly with the shad, or a little later, and is then in fine condition. After its entrance into fresh water, it steadily falls away; indeed the generally received opinion is, that it eats little or nothing during its sojourn in the river, and its habit of rising at and seizing an artificial fly is generally attributed to play or irritation. The spawning season does not occur till autumn or till winter, according to the country. In England or Scotland this season is in December and January; in New Brunswick, from the first of October till early in November; in the Merrimack it was early in October, and in the Connecticut early in September. It should be observed, however, that rivers of the same region may vary some weeks in their spawning season, owing to their relative position and the temperature of their waters. Alcock found salmon full of mature spawn, in the Japanese bay of Hakodadi, early in October, which shows that, even at the antipodes, the salmonidae maintain the same spawning time.

Seeking a gravelly spot, in a pure, running stream, the female excavates with her head a series of shallow holes, in each of which she deposits a portion of spawn, which is impregnated by the male and covered with gravel, partly by the current of the stream, and partly by the tails of the fish. The parent fish soon after go down to the sea. They are then in a state of extreme emaciation, and are known in England as "kelts." After ninety to one hundred and twenty days, ac-

cording to the temperature of the water, the embryo is hatched, but still has a little bag—the yolk sack—hanging to its belly. The progress of the young salmon is henceforth far more complex than that of most fishes, and has excited the liveliest contentions among naturalists. At the end of thirty days, the yolk sack is absorbed, and we have a perfect minnow, about an inch long, with a trout-like form, and having its sides barred like those of the common pond perch, (*perca flavescens*.) In this state it is known as a “parr,” and was long considered as a separate species. For a whole year, the parr swims in the brooks that gave it birth; but as the second spring approaches, a great exterior change comes over it. Bright, silvery scales invest its sides and cover the bars that formerly distinguished it. In this new dress, the parr becomes a “smolt,” and is a miniature salmon, about four inches long. But this change does not simultaneously affect *all* of the brood, a part of which continue in the parr state another year, and remain in fresh water, while the more precocious ones make for the sea in spring or early summer. In New Brunswick, some smolts go down as late as August, while in England their time is May. They return in September, but now wonderfully grown; little fish, that left the river from four ounces to eight ounces, reappear after ninety days, increased to two or to five pounds. The travelled smolt now scorns his homestead name, and becomes a “grilse.” As such he may visit his yet immature brethren, still living at the head waters of the river, and destined to assume the smolt coat only in the following spring.

Late in autumn or early winter, according to the country, sees the grilse return once more to the sea, to again come back to its river the following spring. At three years old—that is, the third spring after its birth—it is a “salmon.” The mature fish has the tail less forked than when a grilse, and is of a more robust form. At this age, the female carries spawn for the first time; but the male, while yet a parr, is fecund at eighteen months, and frequently pairs with a full grown female salmon. These details of growth are necessarily introduced to show at what seasons the fish pass up and down

the river; for, at these times, a *free passage* must be provided for them over all obstructions. The weight of full grown salmon differs much in different streams. In some Scotch rivers, they are twice as large as in others. The average of the old fish in the Merrimack was about fifteen pounds; in the Connecticut, they seem to have been larger, getting sometimes to thirty-five or even forty pounds, though not so large and rich as those of the St. Lawrence. It sometimes happens that by a convulsion of nature, or a like accident, salmon are cut off from their return to the sea. They are then called "land locked," and continue to breed, though they decrease in size. Those taken in the St. Croix river weigh from one to four pounds; but in southern Sweden they attain to twenty pounds, and average six or seven pounds. That salmon live to a considerable age is certain, from actual experiment. In 1829, George Dormer, of Bridport, England, placed a three year old salmon in a small spring near his house, where it continued to live and flourish for twelve years. From actual experiment, too, we know that the progeny of river always return to it from the sea, and no other. Mr. Young marked a great number of salmon, and these, when caught the year after, were invariably found in their own stream.

The disappearance of salmon in the Connecticut river is of much earlier date than in the Merrimack; nor was it gradual, but comparatively sudden. In 1797 they were abundant; within a dozen years after they had nearly or quite disappeared. The cause of this rapid extinction was a dam, whose effect was precisely that of the one at Lawrence, though its relative position was entirely different. Just below the mouth of Miller's river, may yet be seen the ruins of this fatal barrier, erected about 1798 by the Upper Locks and Canals Company. It was sixteen feet high, and stretched entirely across the river. The extinction that followed makes a precise parallel with that already cited in the Merrimack river. For some few years, till about 1808, salmon were caught at the falls. The *first* year they were in great numbers, being headed off by the new obstruction, but, within a dozen years, their extinction was complete, and for the last fifty-five years

the salmon has been unknown, except as a straggler, in the Connecticut. It may be asked, how an impassable barrier, placed at Miller's Falls, one hundred miles from the mouth of the river, should have caused the immediate extinction of the salmon, whereas a similar barrier, near Bristol, on the Pemigewasset, at about the same distance from the mouth of the Merrimack, should simply have shut out the fish from so much of the river as lay *above* the dam, while *below* they continued to flourish; for they were numerous a dozen miles above Concord, N. H., some thirty years since? The answer to this question is a complete illustration of those special conditions which are absolutely essential for the propagation of salmon. The Connecticut has a long and gently declining course; it deposits the fertile alluvium of a sluggish stream. The Merrimack has about the same fall, but in a much shorter course; it deposits the coarse, barren silt of a strong current. The waters of the one were too quiet and too little aërated to hatch the salmon spawn, except in the mountain branches; while in the other, many of the middle tributaries, and parts even of the main river, were doubtless suitable for spawning beds, when the fish were cut off from the upper sources. Quite otherwise with the shad. The gentle Connecticut is precisely suited to their nature, as is well shown by the way in which they hold out in that river, despite a multitude of gill nets at its mouth, and the dams that have stopped their free migrations. Nevertheless, they too have decreased in numbers seriously. Three-quarters of a century ago they were so abundant as to be thought of little value, and were taken in large quantities in weirs. As many as two thousand were sometimes caught by one haul of the seine at Hadley Falls. There has been no such fishing in recent years, except in 1849, when the fish were headed off by the closing of Holyoke Dam, and two thousand one hundred were then taken by one sweep of the seine. Ever since the building of that dam there has been a perceptible diminution of shad. Thus, in 1853, (not a remarkable year), between forty and fifty thousand were caught at Hadley Falls; during the past season, (which *was* a remarkable one), the catch has been

only about thirty-five thousand, indicating a decrease of one fourth in twelve years. On both rivers, the number of fishing places abandoned, because no longer profitable, is very great. There were probably three times as many places thirty years ago than now are on any given part of these rivers. Fifty years since, eight nets were used at Hadley Falls! now only *one*. It is proper to observe that the fishery is very dependent on high spring freshets, which enable the fish to pass over the gill nets at the mouth of the river; were it not for these engines, the Connecticut, below Holyoke, would still be a fine shad stream."

V.

"THAT SUCH COMMISSIONERS COMMUNICATE WITH COMMISSIONERS THAT ARE OR MAY BE APPOINTED BY THE STATES OF VERMONT, MASSACHUSETTS AND NEW HAMPSHIRE, UPON THE SUBJECT OF THE RESTORATION OF SEA FISH."

Your Commissioners have discharged the duty imposed upon them by this requirement of the resolution. On the 26th of last February, a meeting of commissioners was holden at Boston, at which all of the New England States were fully represented. The result of that meeting was

1st. The organization of the Commission as "The New England Commissioners of River Fisheries."

2d. Adopting the following programme for the re-stocking of the Connecticut river with shad and salmon:

It shall be the duty of New Hampshire to procure impregnated ova of shad and salmon and place them in the head waters of the river; of Vermont and Massachusetts, to build suitable and sufficient fish-ways for the free passage of the fish; of Connecticut, to prohibit the use of gill nets and stake nets or pounds in the Connecticut river, and upon the sound near its mouth. It is understood that the duty to be performed by each State is conditioned upon the coöperation of each of the other States.

Of course, New Hampshire would not be expected to stock the river with fish if there were no fish-ways; neither would Vermont and Massachusetts be at the expense of building fish-ways if there were no fish, and fish-ways would be useless

so long as Connecticut allows the fish to be exterminated by the use of gill nets and pounds. Considering that Connecticut will receive the lion's share of the benefits arising from the introduction of salmon and the increase of shad, it would seem as if her proportion of duty was very light in comparison with the heavy outlay which will have to be made by the other States. Indeed, the whole responsibility of the matter now rests with the people of Connecticut. The other States are ready to commence their parts of the work at once, and will do so as soon as a law is passed by this State, forbidding the use of gill nets and pounds. It may be proper, in this connection, to call your attention to the following resolution, which was passed by the Legislatures of Vermont, New Hampshire and Massachusetts, respectively :

“Resolved, by the Senate and House of Representatives, in General Court convened :

“That the attention of the State of Connecticut be respectfully invited to the subject of the improvident destruction of shad in the Connecticut river, and especially near its mouth, by means of gill nets, and otherwise ; and that the State be earnestly requested, as a matter of comity between sister States, to so regulate the fishing in that river, as to allow the free and unobstructed passage of all kinds of sea fish into it, during such portion of the time as will be sufficient to stock the upper waters of that river and its tributaries with a reasonable supply of such fish.”

In order to convey some idea of the task which the States of Massachusetts and Vermont will have to accomplish in case Connecticut river is re-stocked with salmon and shad, we quote from report of Massachusetts commissioners, the following :

“There are a dozen conditions which a fish-way, be it great or small, must fulfil, to wit : that a good channel lead up to its lower end ; that the lower end be so placed and arranged that fish easily find it ; that the head be so placed as to be easily found, when the fish again pass *down* the river ; that the lower end, and the whole course, be wide enough ; that the ascent be not too steep ; that there be a sufficient sheet

of water falling down it; that the supply of water be properly regulated at the head; and that it be protected from destruction by falling ice, by freezing up, by floating timber and by freshets; that the water above and below be practically pure; that it be protected from poachers; that it be not placed near machinery that might scare away the fish; that no fishing be allowed within four hundred yards of its upper and its lower end; and, finally, that it be kept open at all times when the migratory fish are passing *up* the river, or are returning *down* the river."

Fish-ways may be made in two modes: the *pass*, which is simply a sloping trough; or the *stair*, which is a series of steps, whereof each is a water-tank, (*see plate*.) In the first case, the fish rush up the sloping trough; in the second, they jump from step to step, aided by the flowing sheet of water, which makes a series of little falls in its descent. The pass is more simple, cheaper and less likely to get out of order; but the stair gives better chances to the fish to rest in their ascent, and is, therefore, more fitted for high dams, and for fish of less activity than the salmon—for example, the shad. Several modifications may be introduced in the construction of both.

The alewife will run up a fish-way of moderate width, as is proved by the success of the one below Mystic Pond; so, too, will salmon, which have been seen to force their way through water so shallow, that their back fins showed above the surface, and then rush up the apron of a dam six feet high. But it is to be feared that shad will be shy of any fish-way that is not approached by a channel, a dozen feet wide and a couple of feet deep. Furthermore, some mill canals are obstructed by locks, which would be a serious impediment.

The lower end of the way should rest in a large pool, not less than three feet in depth, and which, by its lower level, would be full, even when the river about it was shallow.

This pool, and the current of pure water from the pass, would attract fish, which might further be directed to the spot by a slat weir, stretching toward the centre of the stream. The head of the pass should be similarly arranged, so that

the young fish might go down by the proper route, and not carried over the dam and killed.

The slope of the fish-way should be moderate for shad, though salmon require little help in this respect, and have been seen to go up a rapid sixty feet high, where the fall was one in two and a half. A slope of one in ten would be gradual enough. On the Tay, it is one in fourteen; and at Mauzac dam, including the spiral course of the water, about one in nine; the lower the dam, the more rapid may be the slope. It is pretty well established that shad, with a plenty of water to spring from, and only one jump to make, will rush up a nearly vertical sheet of water, five or six feet high. Supposing all these passes built on improved plans, the next question is, *what would come of them?* In the first place, then, no salmon would come of them, for the good reason that there are none in either of the rivers. Shad there are still in considerable numbers; and it seems to be the belief of many intelligent persons in New Hampshire, that these fish would run up in great plenty to Lake Winnipiseogee, the very next spring after the erection of the passes. Such a result might follow, and it might not; the strong probability is that it would not. For sixteen or eighteen years, respectively, the shad have been cut off from the upper Connecticut and Merrimack. Their instinct drives them to return to their own breeding beds, but, so far as we know, *not to go beyond*. All their breeding beds are now below the dam, and there is little to induce us to think that they would make much exertion to surmount these obstructions. At Lawrence, for several years, they came into the quick water at the very foot of the dam, showing a plain anxiety to get up; but they have long disappeared from the spot, and now only stragglers are seen there. At Holyoke, more run at the foot of the dam, and a properly placed pass would very likely induce some of them to go up the first season; but at Lawrence, it would be no surprising thing if none went up at all, though the chance is that a few would surmount the dam.

The progeny of these pioneers would certainly go up the year after, so that if the first fish, no matter how few, were

properly protected, the upper waters would, in course of years, be re-stocked. At any rate, there is a simple remedy for the trouble. Live shad could be carried up and put in the mill ponds at Lawrence and Holyoke, and salmon could be bred in the head waters of the Connecticut and Merrimack. It has been ingeniously suggested that "land locked" salmon should be thus bred, which would be a most valuable fish, even though confined to fresh water, and they would very likely resume their old habits and grow to their normal size, by getting access to salt water. But the best contrived fish-passes, and the most extensive breeding of the young fry, would avail little, without proper laws rigidly to regulate the time and manner of fishing. Nor would a mere law suffice; for a law, to be of use, must, first, be well drawn; secondly, impose penalties for its infraction; thirdly, have somebody to carry it out.

With the first advent of civilization, wild animals disappear, unless protected by legislation. The salmon laws of Great Britain would make a volume of themselves. The last Scotch law repealed *thirty-three* preceding ones on the same subject. The English salmon law now forbids all "fixed engines," like gill nets, or "bag and stake nets," a contrivance that we should call a net weir, and similar to that form of seine sometimes used to take blue fish from our bays. It also orders a free gap in all weirs that extend more than half way across a river, and impose penalties ranging from £1 to £50, with confiscation of all fish and material. It is very precise, too, as to the number of "close days," that is, days when no fishing is allowed during the season.

In old times on the Connecticut and Merrimack, there were strict local fishing laws. The fishing days were Monday, Tuesdays and Wednesday; the remainder of the week was "close time." The length of the seines, also, was limited to ninety or ninety-nine yards, such regulations would be necessary were the rivers restocked. There should be a close time of at least forty-eight hours, each week, weirs and gill nets should be interdicted; and the length and depth of seines,

and the size of the meshes established, to enforce such laws fish-wardens would be necessary."

And again the Massachusetts Commissioners say :

"Availing themselves of discretion allowed by the 13th section of the Act, the Commissioners have not yet begun fishways over the dams on the Connecticut. At its last session, the General Assembly of Connecticut, authorized the Governor to appoint two Commissioners to consider the subject of the protection of sea-fish in the Connecticut river."

Doubtless, by their recommendation, the State of Connecticut will give such guarantees of assistance as will warrant Massachusetts in putting up fish-ways at Holyoke, and at Turner's Falls. At the latter place a new dam is now building, but the proprietors have been duly notified that they will be soon required to build a suitable fish-way, which would, of course, be at their own expense. The precise rights of the Hadley Falls Company (at Holyoke,) have not yet been brought to arbitration, but there can be no doubt that the Commonwealth would have to bear a part of any expenses there incurred. If the State had to bear *all* the expenses, it would be considerable ; because, not only must the fish-ways be paid for, but perhaps damages also to the company for their water, and the abutters for their land. The cost of this fish-way could scarcely be less than of the one at Lawrence, which will not be far from \$9,000. In a former report, the cost of the fish-ways at Lowell, Lawrence and Holyoke, was estimated at \$22,000, *exclusive* of damages that might be paid to the Hadley Falls Company. Those at Lawrence and Lowell, now almost finished, will together cost from \$11,000, to \$12,000, leaving about \$10,000 of the estimate to be applied to Holyoke. The amount voted by the Commonwealth (section 14 of the Act,) was \$7,000, and of this there will be very little, if any thing left by next spring."

3d. The Commissioners adopted the following circular, which has been distributed throughout the New England States, and is herewith submitted.

CIRCULAR.

The New England Commissioners of River Fisheries wish to bespeak the attention and the assistance of all persons who are interested in the re-stocking of our fresh waters with valuable fish, such as the salmon, shad, herring, alewife, trout, black bass, striped bass, and lamprey eel.

These fish half a century ago, furnished abundant and wholesome food to the people; but, by the erection of impassable dams, the needless pollution of ponds and rivers, and by reckless fishing in all ways and all times, our streams and lakes have been pretty much depopulated.

Luckily, the immense natural increase of fishes opens a way to their restoration. We have only to remove the causes of their destruction, and they will multiply enormously, without any care at all.

The causes of destruction are chiefly as follows:

1st. Impassable dams. Over these fish-ways may be built with little waste of water.

2d. Pollution of water by lime, dyes, soap, saw-dust, and other mill refuse. Much of all these should not be thrown at all into the water. As to the dirty water from wool or cloth washing, it may be confined to one side of the river by a plank screen placed opposite the race-way.

3d. Destruction of young fish by mill wheels, which may be avoided by a lattice placed across the mouth of the mill canal.

4th. Destructive modes of fishing, among which we may include gill-nets, weirs, very long seines, pot set-hooks, fire-fishing, and fishing through the ice, all of which should be by law forbidden.

5th. Fishing too much, and at wrong seasons. For migratory fish, certain days in each week, should be "closed,"—that is to say, no fishing should then be allowed; and the taking of trout on their spawning beds should be vigorously interdicted.

Massachusetts and New Hampshire have already passed laws for the opening of the Merrimack and the Connecticut sea-fish, and for the encouragement of the breeding of valu-

able fresh-water fish. Fish-ways have been erected upon the Merrimack, and many thousand salmon eggs have been planted in its upper waters.

By the interest and the assistance of the people at large, these cheap and important reforms may be carried through.

N. W. FOSTER,	}	<i>Commissioners of Maine.</i>
CHAS. G. ATKINS,		
H. A. BELLOW, (Chairman,)	}	<i>Commissioners of New Hampshire.</i>
W. A. SANBORN,		
ALBERT D. HAGER,	}	<i>Commissioners of Vermont.</i>
CHARLES BARRETT,		
THEODORE LYMAN, (Secretary,)	}	<i>Commissioners of Massachusetts.</i>
ALFRED R. FIELD,		
F. W. RUSSELL,	}	<i>Commissioners of Connecticut.</i>
HENRY C. ROBINSON,		

Boston, Feb. 26, 1867.

The third cause of destruction mentioned in this circular is charged upon the mills at Windsor-Locks. Intelligent and close observers think the charge unfounded, and Mr. C. H. Dexter, President of the Connecticut River Company, has with great courtesy invited a full and fair examination of the subject this season ; which examination should be made when the young shad return to the sea.

The deep interest felt in this important subject by our neighboring States, is proved by the great expense they have already been at in the matter, Massachusetts alone having expended nearly \$20,000. The recommendations hereinafter made seem to the Commissioners to be sound and desirable :

First. Because they are intrinsically right and just. They would all be profitable to the State, if we were to have no reference to the conduct of the other States.

Secondly. We are put to very inconsiderable expense.

Thirdly. The requirements will add very materially to our revenue, will contribute much to reduction of cost of living, and will make sure the continuance of the shad, and the return of the salmon to their favorite streams.

The Commissioners, suggesting to the General Assembly the importance of immediate action in these matters, the better to enable the other States to prosecute their duties the present season, respectfully recommend :

1st. That the use of gill-nets and stake-nets after 1867 be strictly prohibited ; that suitable penalties for breach of the laws be affixed, and that violation of this and of all other laws relating to fishing in Connecticut River be punishable by the Superior Court.

2d. That the taking of salmon for a fixed number of years be absolutely prohibited.

3d. That Commissioners be appointed by the Governor to hold office for one or more years.

4th. That the Commissioners be directed to make complaints of breach of Connecticut River fishery laws.

F. W. RUSSELL,
HENRY C. ROBINSON, } Commissioners.

HARTFORD, May 14th, 1867.

DESCRIPTION OF THE PLATE.

FIGS. 1, 2 and 3.—Young shad (*alosa praestabilis*,) before they have left the river for the sea. Natural size. *Figs. 1 and 2* show the differences in size in the different broods at the same date; August 14. *Fig. 3* is a young fish just ready to go down to the sea; September 26.

FIG. 4.—Diagram of the double Fish-stair, at Lowell, showing the arrangement of the tanks and the course of the water. The tanks are somewhat over twelve feet square and about two feet deep. The fall from each tank to the next, is one foot. With 2 feet and 4 inches of water on the dam-crest, a floating body moved down the current of this fish-stair with an average speed of less than two miles an hour. *c*, the dam.

FIG. 5.—Diagram, to show how the width of the sheet flowing into the first tank, is regulated by flashboards (*b*) placed on the dam (*c*.)

FIG. 7.—Plan of Foster's fish-way, showing the up-stream slant of the cross-bulkheads (*f*) and the course of the water. *c*, the dam. *g*, the flood-gate.

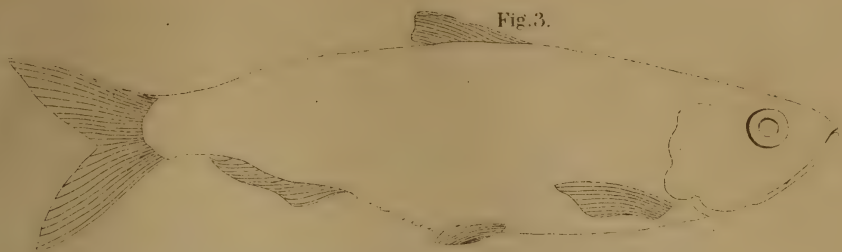


Fig. 3.

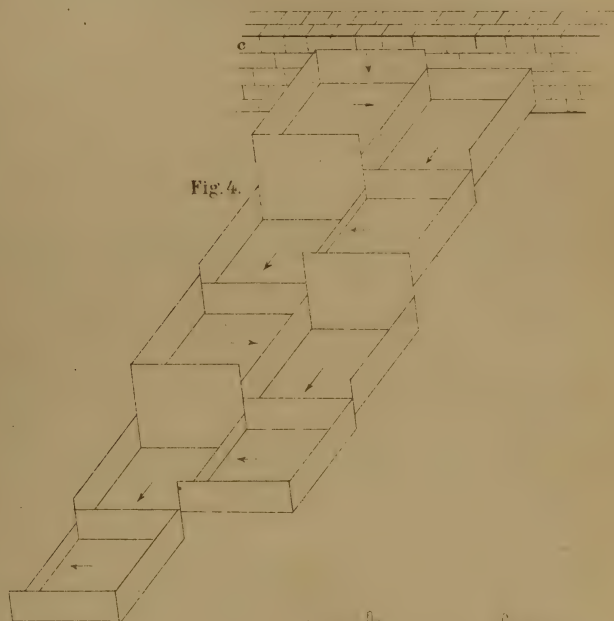


Fig. 4.

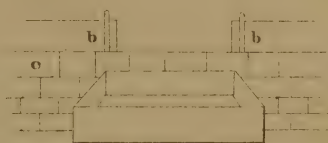


Fig. 5.

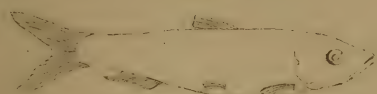


Fig. 1.

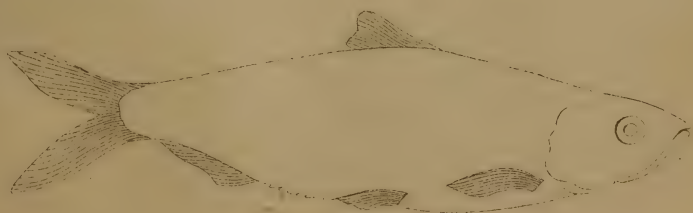


Fig. 2.

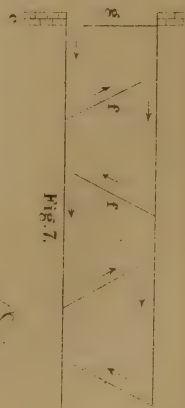


Fig. 7.

19
REPORT

OF THE

COMMISSIONERS OF ENQUIRY

RESPECTING A

STATE INDUSTRIAL SCHOOL

FOR

CONNECTICUT.

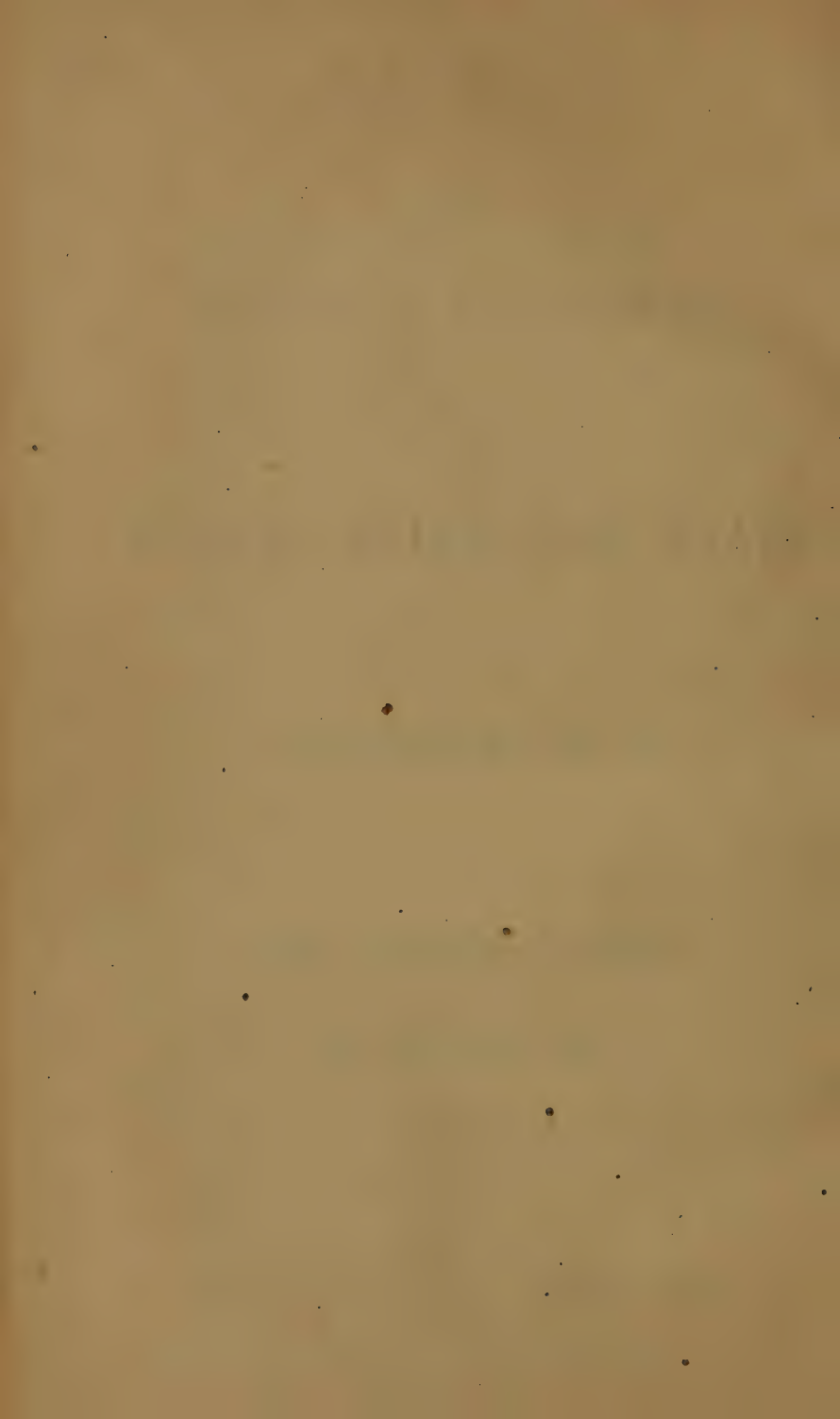
PRESENTED TO THE GENERAL ASSEMBLY

AT THE

MAY SESSION, 1867.

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COMMISSIONERS' REPORT

TO THE

GENERAL ASSEMBLY OF THE STATE OF CONNECTICUT,

AT ITS

MAY SESSION, 1867.

THE last General Assembly appointed Thomas K. Fessenden, of Farmington, James B. Whitcomb, of Brooklyn, and Daniel C. Gilman, of New Haven, Commissioners to enquire "into the expediency and desirableness of establishing an Institution for the Reformation of abandoned young Women in this State; and also as to the necessity and best methods of establishing a Reform or Industrial School for unfortunate, vagrant and vicious Girls."

The Commissioners were further authorized "to procure as they can all needful statistics, to visit similar Institutions now organized in other states, and to ascertain such facts as may enable them to report to the next General Assembly some suitable plan for the establishment of a Home or Homes, or a Reform School for such women and girls, should such a course be thought desirable."

The occasion of the appointment of the commission was the presentation to the General Assembly during the two previous Sessions, of several highly respectably signed petitions for Institutions of the kind above proposed. The first of the peti-

tions was from the Mayor and Common Council of New Haven, and was urged by them and other gentlemen upon the attention of the Committee on Humane Institutions, to whom the petitions had been referred by the Assembly. They represented that there was a large and increasing number of abandoned women, and of homeless, exposed vagrant and vicious girls, brought before the city courts; that their degraded and wretched condition often demanded sympathy and education rather than punishment; that heretofore there has been no other place of custody than the jail or almshouse, and a committal of the girls to these was, on many accounts, greatly to be deprecated. The petitions from other towns and cities than New Haven, showed that the evil was deeply felt in other parts of the State, and that a remedy was desired which should meet the wants of the State at large.

But notwithstanding these representations, the Committee on Humane Institutions, did not feel prepared to report favorably to the petitions, for the want of definite information in respect to the subject. They therefore recommended to the Assembly the appointment of three Commissioners to enquire in respect to it; and in accordance with their recommendation the Commissioners were appointed.

The subjects thus referred have received the earnest and deliberate attention of the Commissioners, and have occupied the time and attention of one of their number during a considerable portion of the year. A circular was early issued to the selectmen of each town to ascertain, if possible, the number of uncared for, and vagrant girls, dependent upon the towns. Several of the towns and cities of the State were personally visited, and enquiries were instituted of the police and other local authorities as to the extent, causes, and remedy of vagrancy and prostitution. Juvenile reformatories in Massachusetts and New York were inspected, the reports of similar Institutions in other states and countries have been carefully examined, and an extensive correspondence held with those by whom reformatory schools and Institutions have been made a speciality, to ascertain their views, and the best

methods of organization and government. The results are herewith submitted.*

In regard to the First topic of inquiry, there is a difference of opinion on the part of your Commissioners. The undersigned regard a *State* Institution for the reformation of abandoned young women as impracticable and undesirable. We can see no feasible way of creating or controlling such an Institution. The evil complained of is felt to be a most serious one. The necessity of restraining and punishing the hopelessly abandoned is recognized. It is felt that the present mode of treating this class accomplishes little towards checking or reforming them. But we do not see how this can be remedied by a *State* Institution. If restraint and punishment are the ends chiefly to be gained, the jail is as effectual as any Institution of the kind will be. Doubtless some improvement may be made in the laws regulating the term and mode of commitment. It is much to be desired also, that greater efforts should be made by humane and Christian men and women for the recovery of these fallen women. They should be visited, and instructed, and encouraged to reform. But we are constrained to believe that the hope of the rescue of this class, in considerable numbers, by any means, is not warranted by the experience of the past. They are to be reached, if reached at all, through special charities and private associations. Homes for the Fallen and Friendless must be opened in the vicinity of our cities. These must be created and conducted by humane and Christian women, aided by benevolent associations and the State. To these should the fallen be encouraged to fly for sympathy and help. In this way, numbers have been and yet may be saved.† We rejoice to know that such an Institution has been opened during the past year near New Haven. We cordially commend it to the Assembly as deserving of pecuniary aid.

The undersigned therefore are constrained to report in

* Appendix A. Letters from persons specially devoted to Reformatory Schools and Education.

† Appendix B. Letters respecting efforts for the recovery of the Fallen and Friendless.

respect to the first topic of inquiry *that it is inexpedient for the State to establish an Institution for the reformation of abandoned young women.*

In regard to the Second topic however, we are happy to report an entire agreement on the part of the Commissioners. All believe *that a State Industrial School for unfortunate, vagrant, and vicious girls is a public necessity, and that it is highly expedient that it should be created by the State with the least possible delay.*

In support of this conclusion, we invite the attention of the Assembly,

I. TO THE CLASS OF PERSONS FOR WHOM IT IS SPECIALLY DESIGNED.

1st. *They are girls of a tender age, from eight to sixteen years.* As a class they are too old for the orphan asylum—they are too young to be regarded as abandoned and hopelessly fixed in habits of thieving and prostitution. Their *sex* renders their situation and wants, as well as the means to be used for their good, peculiar. It should materially modify our views of the kind and details of an institution specially designed for them. Their *age*, while it by no means defines the degree of their ignorance or degradation, affords a ground for hope which does not exist in the case of older offenders. It constitutes a most persuasive argument for immediate efforts in their behalf. They stand at the very gateway of the road to ruin. In a single year they may have advanced far onward in a career from which there is no return to purity and safety.

2d. *They are girls of a peculiar class and condition.*

They belong to what has been termed “the perishing and dangerous classes of society;” and are sometimes termed “juvenile delinquents,” and in the French law “detenués,” to distinguish them from older offenders. Various other names are applied to them, such as “outcasts of society,” “helpless exposed girls,” “street-Arabs,” “human vermin,” “wharf-rats,” “vagrants” and “juvenile criminals,” and still other terms denoting mingled pity, fear and aversion. By

your petitioners they are happily distributed into three subdivisions—the unfortunate, the vagrant and the vicious.

The youngest and least numerous portion of them are simply *unfortunate*.—They are helpless and outcast³, suffering, through no fault of their own but are, notwithstanding, exposed to some of the direst ills incident to human existence. They are born to a heritage of abject poverty and often of sin and shame. At least 60 per cent. of them are wholly or in part orphans, while the greater portion of the remainder are worse than orphans. At least *three-fourths* of them are the children of intemperate parents. A very large proportion are the children of the licentious and of criminals. They are born in hovels and amidst filth and disease. Upon them are often entailed diseased and imperfect bodies, and constitutions tainted by vicious blood. They are from infancy familiar with scenes of revolting depravity and debauchery. No tongue can describe their physical sufferings from hunger and cold, and exposure, and brutal cruelty. No father's care, no mother's tenderness, no friendly heart or hand provides for their wants. No one speaks to them words of love, or teaches them of God and their duty, or assuages the inexpressible loneliness and anguish of a deserted but longing, aching youthful heart. In hundreds of cases, in this state, have these little girls been consigned to the poor house, and peddled out by the selectmen of the town to the lowest bidder for the care and services of the town poor. Are they not then properly denominated *unfortunate*?

Almost as a matter of course as they advance in years they become *vagrants*—a class of indolent, unrestrained and lawless wanderers from house to house, and place to place. In the rural districts we find them in bye and unfrequented places, remote from schools and churches. In these localities are herded several (shall we call them?) families of various colors and parentage. They live by begging and thieving. They are the plague and terror of the surrounding districts. The spot is known as “Sodom,” “Satan’s Kingdom,” and the “Devil’s Den.” And from these social and moral pest houses are sent forth their little girls, clad in

ragged to beg or to pillage as best they can. In our manufacturing towns these girls do not assume as distinctly a vagrant character as in the rural districts, the factories affording them employment during working hours. But no sooner does the night fall than they run at large in the streets, or beg from house to house, or sally forth to plunder the hen roosts and gardens, and fruit yards of the citizens. In the cities and seaports they swarm in the lanes and lower streets. They lounge around the wharfs and ship yards, and dance houses, and grog shops. Many of them have no homes. They shun the common school and work only when compelled to work. They eke out their precarious living by begging, and the refuse of the streets. They are filthy in their persons, impatient of restraint, and regardless alike of the laws of God and of men. This is the class technically known as *vagrants*. They are legally defined "*idle, unrestrained children, who obtain their living in a vagrant and illicit way.*"

The third stage of their career is that in which they have committed some flagrant act which exposes them to *legal restraint and punishment*, a stage often very early attained. Heretofore they have been unrestrained. Occasionally a Sabbath school teacher, or a city missionary, or some self denying woman has sought them out, and spoken to them kindly words, and ministered to their wants. But for the most part they have been uncared for, and untaught, and left to become the easy victims of seducers, and professional prostitutes and thieves—and having attained this stage the strong arm of the *law* comes down upon them, and under the plea of justice, and the protection of the public interests, they are arrested by the sheriff or city police, thrust into the jail or lock-up with hardened criminals, and are there fully initiated into the arts of pickpockets and courtezans, and, after a brief and worse than useless imprisonment, come forth lost to shame, and with the feeling that they are indelibly branded as criminals and public enemies.

These three classes are all alike *deplorably ignorant*. A considerable portion of them can not even read; a still larger portion are entirely ignorant of the simplest elements of

a useful education—though in New England, thanks to our common schools, such ignorance is less frequent than in other parts of the United States. Many of them have never entered a church or a Sabbath school. They do not understand the simplest truths of religion, most of them are ignorant of the common proprieties and useful occupations of life. “The great majority” says the Superintendent of the Massachusetts Industrial School for Girls, “who come to us know nothing about household work and are averse to it.”

These girls are often stricken by *untold sorrows*. Who can know how much they suffer from inherited and loathsome diseases, from hunger, nakedness and cold, and for the want of shelter and rest in their wanderings in this great world of wickedness? What object can be more helpless and exposed than such a child, especially when she has been taught by the example of others from the dawn of intelligence to be indolent, false, profane and impure? Is she not to be pitied rather than condemned, as she is, clothed in tatters and rags, shivering and exposed to the rain and cold, spurned from the door of plenty and virtue, regarded by all alike as a pest and an enemy and outcast—with no other refuge than the hovel of filth, or the den of infamy, with no one to care for her, or teach her her duty and danger, or even that she has a Heavenly Father who pities her? Who shall stretch out a friendly arm to save this little wretched waif, from the fiends who are watching to rob her alike of her meagre gettings and of her virtue? Or who, if she is early overcome by poverty and exposure and want, will follow her to the cellar or the hovel where she has dragged herself to die unknown, unpitied, and uncomforted?

We need scarcely add that the *moral condition of these girls is deplorable*.

We do not believe that they are sinners in the sight of God above all others. We believe that there are many in the more favored classes of society as false and viciously inclined, but whose perversity and misconduct is anxiously guarded against, and counteracted, and concealed from the public

view, by parental love. We protest against the idea that because these untaught and unrestrained, and greatly tempted children are frequently and early detected in the commission of offences against the laws and peace of society, that therefore they are the most sinful of all, or are inveterately fixed in sinful habits. But it is not to be denied, that, as a class, they are regardless alike of the laws of God and men ; that they are greatly tempted, and lie and steal, and are prone, if not already addicted, to loathsome vices. The testimony of those who have had the care of girls' Reformatory Schools abundantly confirms the language of Miss Carpenter. "That *girls* of the *criminal class* are far more degraded, dangerous to society and difficult to control than boys. This is well known to those whose experience has enabled them to compare the two sexes. The fact is partly referable to the greater natural delicacy and susceptibility of the nature of girls which renders them open to a deeper impress both of good and evil. They have also been more exposed to the evil influences of bad homes, and the affections which are very strong in these girls, are therefore in close sympathy with vice. Their desire for excitement of every kind is strong, as also for the gratification of the senses. They are generally devoid of any good principles of conduct, particularly addicted to deceit, both of words and actions, of fine but misdirected powers, of violent passions, extremely sensitive to imagined injury and equally sensitive to kindness."

We might quote the testimony of experts on this point at length. But it will be needless if we bear in mind how almost inevitably does the character of any child receive its impress from its early associations and training. How can it be otherwise than that these girls who have been born and nurtured amid scenes of ungodliness and lawlessness and vice,—who have been encouraged in sin by parental precept and example, and upon whom no virtuous influences have been exerted, should early become apt and precocious criminals ?

We are aware that the picture thus drawn will be regarded

by many as highly colored, and as having no corresponding reality in our State. There is a very general ignorance of the existence of such a class of girls among us. Many of the selectmen of the towns replied complaisantly to our enquiries "we have no such girls in our town." But we think the most skeptical will be convinced.

3d. *That there are several hundreds of these girls in this State.* There are not less than 150 of them in the cities of New Haven and Hartford. It was the increasing frequency with which they were brought to the notice of the municipal officers of New Haven which led these gentlemen to petition the Assembly to provide some suitable institution for the custody and reformation of such girls. The late chief of the New Haven police had the names of three hundred abandoned women upon his books, a large portion of whom were under sixteen years of age. We are unwilling to give publicity to all the statements made by the civil officers and other gentlemen of New Haven, who have given this subject their special attention. They declare that it is a matter of frequent occurrence that little homeless girls are found by the police in the streets and in the vilest resorts, and that many others are known, who, if not removed from their present surroundings, will become the vilest of women. The Superintendent of the city schools reports that there are 873 truants in that city who absent themselves from the public schools.

In Hartford, the evil is scarcely less apparent and alarming. The chief of the police estimates the number of openly abandoned women as not less than 75, besides an equal number of a less notorious and degraded class. "They are," said he, brought before the police court again and again. Most of them are under twenty years of age. They come from the country and the manufacturing towns. They are the children of drunken and vicious parents. Cases are known in which parents have encouraged and witnessed the shocking profligacy of their young children, as a means of gain. There are not less than fifty girls in the streets in the lower part of the city, who should to-day be placed in a Reform School."

"Many girls of this class," said the judge of the police

court of Bridgeport, "have been brought before me for pilfering and improper conduct, and many more would be, were it not for the unwillingness of the parties plundered, and cognizant of their conduct, to complain of such children. They often come under my observation, but we can now do nothing with them."

"Five or six of these girls," said a Norwich officer, "come under our notice yearly for vagrancy and thieving. Most of them are the children of foreigners, or are homeless or parentless, or have found their homes made uncomfortable by stepmothers." "There is great need of such a school," said a judge of the Norwich police court. "There are fifty suitable subjects in this city, but there is no place to which to send them. Many cases have come to my knowledge."

"I have for years felt the need of such an institution," said the High Sheriff of New London. "We have twenty or more of them brought before us every year. Their parents are often as bad as the children. I have brought fifty boys before the police court, but could not get them condemned. There are not as many girls."

"There are many of them," said another New London gentleman, "in our streets and about our wharves and shipyards."

As has already been said, the evil of *vagrancy* is less apparent in our manufacturing villages, owing to the employment of the girls in the factories. But there are many in these towns who are destined to ruin if they are not removed from their homes. The civil officers testify to the frequent calls upon them to interfere, where drunken and infuriated parents have beaten their children and turned them into the streets. Two of the most competent gentlemen of New Britain express the opinion, that there are twenty-five girls in that borough who should be sent to a reform school. Ten is the number given by equally competent gentlemen of Willimantic. "I have had charge," writes the first Selectman of Stamford, "of our town poor for the last twelve years, and have often felt the need of such a school. I am a strong advocate for it."

Such are some of the statements made by the civil officers of our cities and towns, to which similar declarations might be added. To the circular sent by us to the first Selectman of each town, 107 replies have been received. These officially state that there are 89 girls in the towns reported, mostly in the poor-houses, who, in their judgment, should be sent to a State Reform School. If the same proportion should hold good throughout the State, there are not less than 107 of this class dependent upon the towns, in addition to those in New Haven and Hartford, making a total of not less than 250. The Rev. Mr. Huntington reports, as the result of a careful examination, much of it made by him in person: "I found, leaving out of the estimate Hartford and New Haven, about 400 children under fourteen years of age in the town poor-houses, the two sexes, I should judge, being about equally represented. If some few of them have been somewhat irregular in their habits, they are still of a class to be cared for in an ordinary home for children. *The entire number of children in the State dependent, wholly or in part, the last year, (1865), upon the towns in which they lived for support, was about 2,000, and about one-half of them were the children of our soldiers.*"

We are convinced, therefore, from the reports furnished us by town officers, and from our personal examination, that there is scarcely a town in the State in which there are not several girls, who, if not in some way rescued from impending danger, will early become a public nuisance and burden.*

In several instances in which the selectmen have answered

* While writing these pages, the attention of one of our number has been three times called to girls of the class under consideration in the town in which he resides. In one family there are three half-orphan girls of the ages respectively of six, eight and fourteen, with an intemperate father. The eldest of them has for several years been a vagrant, beggar and thief. At her instigation, her brother, younger than herself, was induced to plunder a house, for which offence he was sent to the State Reform School. For want of a similar school for girls, she is left still to run at large, and is training her younger sisters to follow in her footsteps. Another case was that of a froward orphan girl of fourteen, for whom, if no other provision had been made, the poor-house was the only place to which she could be sent. Happily for her she has been placed in the Orphan Asylum at Mansfield

our circular with the assurance that "there were no girls dependent upon the town, or who should be sent to a reform school," we have found, from other sources, that there had for years been several cases which greatly needed instruction and relief.

If other evidence on this point were needed, we might quote at length the letters and reports of the Managers of the Girls' Reform School of Massachusetts. "You need not fear," wrote one of these gentlemen, "of getting too large accommodation. We built three houses at first, and have added two more; and *if we had ten houses* they would soon be filled. Every little while we are obliged to publish a notice that we can receive no more at present, until some come of age or are indentured." "An experience of eleven years," says the last report, "has shown that the demand for admittance far exceeds our means for supplying it."

In view of such considerations, therefore, we are led to the conclusion that there are *not less* than 300, and are probably 500 girls in this State for whom the desired provision should be made with as little delay as is possible.

But 5th. *The evil influence of this class* should be carefully borne in mind. "One evil-disposed girl," said an experienced teacher and an officer of the New Haven City Council, "will destroy ten boys." "It is claimed," says Mr. Talcott of the Providence Reform School, "that a vile girl under twenty years of age leads as many as one a month with her. But if she takes but five a year, how great is the evil she is doing." Says Miss Carpenter of Bristol, England, the highest English authority in regard to reformatory schools for girls, "though numerically, such girls are not more than a third of the importance of boys, yet their influence on society for evil, if left uncared for, can hardly be exaggerated. When we reflect that they, hardened and reckless through the degradation of a public trial, must not only spread vice around them, but become the mothers of the next generation, we must perceive the importance of making every effort to rescue them. They will, if left to themselves, perpetuate a race of paupers, prostitutes and thieves." "There is not one of them," says

Dickens, "not one, but will sow a harvest that mankind *must* reap. From every seed of evil in this bog, a field of ruin is sown, that shall be gathered in and garnered up and sown again in many places in the world, until regions are overspread with wickedness enough to raise another deluge."

Surely then there is enough in the sex, the age, the character and condition, the numbers, and present and prospective influence of these girls, not only to appeal to the sympathies, but to awaken the anxious solicitude of every friend of humanity, and to demand the care and interposition of the State.

We therefore turn to consider—

II. WHAT CAN AND OUGHT TO BE DONE WITH THEM.

The petitioners pray for the establishment of a reform school for girls, similar to that for boys at Meriden,—“for a home or homes for unfortunate and friendless and exposed girls.”

In responding favorably to their request, the Assembly should have definitely in mind what is involved and proposed in the establishment of such a school.

1st. The first step to be taken is for the State to place itself *in the stead of the parent*, and do for these girls what ought to have been, but has not been done, by their parents or natural guardians. The good of the children and the public welfare demand such an interposition. They are the wards of the State. The State interposes whenever disease or insanity render it necessary to remove a child from the custody of a parent. How much more should it do so where a moral malady infects the parent, endangers the temporal and eternal well-being of the child, and threatens to scatter broadcast the seeds of a deadly, moral contagion.

2d. *The end to be sought for is not punishment, but prevention and reformation.* Heretofore, no distinction has been made between a girl who has been guilty of petty larceny and the hardened thief or prostitute of mature years. The child has been seized, condemned and thrust into the common jail as a criminal, ostensibly for her own good, and to vindicate the law, and to restrain others from crime. The result has

been that she has regarded herself as a branded outcast from, and an enemy to society. She has lost all fear and shame. She has been thrown into the closest intimacy with the vilest and most hardened criminals, and by them initiated into the mysteries of crime and pollution. After a few weeks, she has come forth ten-fold worse than when she entered; and so far has her treatment been from restraining her or others, that it has utterly destroyed all fear of the penalty, and all regard for the justice of our laws.*

* Nothing is more fully proved than that juvenile delinquents should not be regarded or punished as criminals. This is the unanimous opinion of experts. It was a conviction of this fact that first led M. Demetz, the founder of the Mettray School, to its establishment. The same was true of the founders of the New York House of Refuge. It is made the groundwork of the appeals of the English writers on reformatory schools. Thus, the 5th chapter of Miss Carpenter's "Plea for Juvenile Delinquents" is entirely devoted to a consideration of their "present treatment, by which they were committed to the jail, as the only infirmary provided by the parental care of the State for the cure of her erring childrens' souls." The injustice and injurious effects of such a course she demonstrates at length, in view of its effects in training these children to be confirmed criminals, by its natural influence upon the child, and by the testimony of experts and of prison reports.

A similar course of thought is pursued in the 5th chapter of Hill's Prize Essay on Juvenile Delinquency, entitled "The Jail Abortive and Ruinous." It is proved to be worse than useless as a means of reform, ruinously expensive, cruel, unjust, and contrary to the genius of Christian Institutions.

The same course of thought is fully elaborated in the appendix to the first report of the Lancaster School, and is confirmed by the opinions of the Massachusetts police judges and officers. Judge Russell of the Boston Police Court writes, "I have thought a good deal upon this subject, for it has often seemed to me that, whether I passed sentence of fine or imprisonment, or set the culprit at liberty, I was passing sentence of ruin upon the poor girl."

The Sheriff of Middlesex says, "The State Prison does not end the career of these unfortunates, and sentence after sentence to the house of correction has to be imposed upon them. The terms of the sentence are generally shorter, and more acquittals take place from the sympathy of the magistrates and jurors, and the expense of a series of trials is larger than in the case of male offenders. There is, too, much less opportunity for reformation; and while the doors of the brothel are always open, the door of almost every private house is shut. At this very term, three young girls were brought up, after many weeks confinement in jail at an expense of \$2 per week, and, for want of a suitable place to send them, punished with nominal sentence to the same jail. In these cases, the expenses actually incurred are, No. 1, \$28.75; No. 2, \$25; No. 3, \$17.17; in addition to board in jail and the share of the expenses of the police court, the grand jury, the court jury and officers, &c., which, though it cannot be computed with exactness, is at least as much as the taxed costs. When these girls were discharged

Now, what we propose is to substitute instruction and reform in the stead of punishment. These girls are to be pitied, and taught, and encouraged, rather than condemned and given over as useful only in their destruction. And

3d. As a *means* of attaining this end, the institution proposed is to be a *school* and temporary *home*, instead of a *prison*. We propose to do away with prison life and discipline, and, so far as is possible, substitute the wholesome restraints, and purifying and elevating influence of a well-ordered Christian family.

In carrying out this idea, the *mode of committal* is one of the vital features of the plan we propose. For its full discussion, we refer to the report of the Massachusetts Commissioners.* It will be found to answer the two enquiries—how are we to obtain the custody and control of the girls? and how shall this be secured without bringing upon them the criminal taint and brand? This is accomplished through Commissioners specially appointed for the purpose in the different towns, and through Judges of Probate, acting in the place of criminal courts and trials. When complaint is made of a child as exposed, or vagrant or vicious, she is to be taken before these Commissioners. They are to summon her parents or guardian, if she has them, to show cause why she should not be sent to the school. If none is shown, she is to be committed, through the officers of the law, a full statement of her case being made to the Superintendent. The greatest care is to be taken that no injustice is done to the child. She is assured that her committal is for her own good, and that she is henceforth to be under the care of those who will love and protect her, and seek her welfare.

The management of the school is to be throughout in accordance with its benevolent design. It should be committed to a superintendent, carefully selected and peculiarly qualified for the position. He is to have the aid of excellent women,

from custody, the thought of the future before them was most painful. *It had but one direct, downward course, unless, by some interposition, a little short of a miracle, it should be turned aside."*

Further testimony, equally strong and explicit, can be found at length in the volumes of Miss Carpenter and Mr. Hill on Reformatory Schools and Education.

* Appendix C.

who will act in the stead of a mother and sister, and who will watch over and instruct the girls, as nearly as possible conforming the spirit and arrangements and daily duties and routine of the house to the standard of a well-regulated Christian home.

4th. *In this home these girls are to receive such an education as shall fit them to become intelligent, useful and virtuous women, in the common walks of life.*

There will be especial need of care in regard to their *sanitary condition*. They inherit vitiated constitutions. "Many of these girls," say the Trustees of the Massachusetts School, "on entering the School, have come from dirty, dark, close and unwholesome habitations, and from among people of irregular and vicious habits, and their health is, on an average, very poor." "Many of them," says the Chaplain of an English jail, "are laboring under bodily injuries. Most of them are old before they are young. They look haggard, pale and emaciated. Many of them suffer from scrofula and cutaneous diseases; and, indeed, there are few who are physically able to discharge any laborious occupation." It is therefore an indispensable preparation for other measures, to remove their filth and teach them habits of cleanliness. They need and must have abundant and nourishing, though not luxurious food. "And," says the Lancaster report, "by regularity, wholesome food, perfect cleanliness, early hours, gentle discipline, careful and constant employment of the mind and body, free exercise in the open air and cheerfulness in the school-room, house and work-shop, their health is rapidly improved, and the inmates of the several families, on the whole, become remarkably healthy."—8th Report.

Not less important is their *industrial training*. As they are almost universally ignorant of, and averse to useful employments, and very indolent, they must be taught that *labor* is not only *necessary*, but *honorable*. It must be made a source of *happiness*. It must be suitably diversified with play and study. They must be taught to cook, to wash, to sew, and in every department and kind of womanly industry. They must be qualified to become competent servants, that their

services may be in constant demand, and self-supporting, and that they may become industrious and useful housekeepers and mothers.

At the same time they are to be taught those branches of education which are usually taught in the common schools—reading, writing, arithmetic and geography. Singing is a most valuable means of awakening an interest in the school, and of producing the best and most lasting impressions. There may be cases in which it will be desirable to carry forward girls of uncommon promise into the higher branches of education, and fit them to be teachers and assistants in similar schools; but, as a general principle, it is undesirable to educate them beyond the common standard of attainment among the poorer classes in society.

In connection with, and above everything else should their *social and religious culture* be made an object of constant care and effort. Respecting the family, as a means of exerting the desired *social* influence we shall speak of hereafter. *Of the importance of a thoroughly religious training we hardly need to insist*; for, without it, all else will be powerless and in vain. "Of what importance," said honest John Faulk, "is it that we educate thieves." Will not a vile woman be dangerous to society just in proportion to her knowledge and power to influence others? Are there any influences which can reach down into the depths of human sinfulness and degradation, and enlighten, reform and purify, and save, other than those which spring from the Christian religion? We would therefore have this School, in the broadest sense, and throughout, a *Christian Institution*. Its ends and aim, its teachers, its arrangements; the daily routine in the family, the school, the workshop; the intercourse of the teachers and pupils, must be pervaded and controlled by a sense of God's presence, and of personal accountability, by the spirit and expression and practice of *love*.

We should leave this part of our subject incomplete, were we not distinctly to state that all that is done is to be a *temporary and preparatory process*. Unlike orphan asylums and

hospitals or poor-houses, this School contemplates, ordinarily, but a year or, at most, two or three years of training before the girl is transferred to some suitable private family. There, the good begun, it is hoped, may be matured and perfected.

The average period of detention at the Boys' School at Meriden has been about two years. It has been the same at the Girls' School at Lancaster, Massachusetts. The range in the different reformatories in the United States, as reported in 1859, was from six to thirty-one months; the average being about eighteen months. It is the unanimous opinion of those best informed on this subject that a protracted detention in any charitable institution is very undesirable, and should be avoided. The expense, the desirableness of extending the benefits to as large a number as possible, the tendency of a dependent state to beget a feeling of servility, and prevent a spirit of self-reliance and self-support, the order of Providence, all alike show that the period of detention should be reduced to the shortest time consistent with securing the good ends desired.*

The inquiry next arises:

III. WHY SHOULD THE STATE CREATE AND SUPPORT AN INDUSTRIAL SCHOOL FOR GIRLS?

We answer, 1st, *That if the State does not do it, it will not be done; certainly not as it should be done.*

Nothing of the kind is now in existence, nor is proposed. There are Sabbath, Ragged, and Industrial Schools; City Missions, and Orphan Asylums, and these are doubtless accomplishing much in the way of prevention. But what can these do for the hundreds of girls whom they never reach, or who go from them to spend their days and nights amid the haunts of vice, and under a constant temptation to every species of crime?

It has been proposed *to transfer them at once into private families.* Doubtless there are cases where such a course will

* For further particulars as to the ends and methods of Girls' Reformatory Schools, we refer to an admirable letter from Miss Carpenter to the New York Convention of Managers, &c. 1st Report, p. 108, Appendix D.

be proper. There are many children who need only a transfer into the bosom of a virtuous and kindly household, where they will be suitably instructed, and where for the sake of the child, there will be the requisite forbearance and effort, in order to the rescue of such children. But is this to be expected of the great majority of the class for whom this school is designed? Their ignorance, indolence, impure habits, and perverseness, render them, for a time, at least, undesirable and unsafe members of any family. To instruct them, to reform their offensive and vicious habits, to teach them even the most simple duties of the household, requires a degree of patience, and tact, and self-denial which is not often found. This preliminary work must be done by those who make it their business, and who are specially interested in, and qualified for, it. Then its completion is comparatively easy and certain, but not, as we believe, until then.

Can we rely on *private charity* to found and support such an *institution*?

Would that there were some one, or more, of our citizens, who, from the abundance of their treasures, would erect for themselves an imperishable monument of their benevolence, in the form of a Home for these friendless and exposed outcasts. We can but hope that the day will dawn when benevolent women, especially, will feel that this degraded and suffering class have the first claim upon their charity. When this time comes, then we may hope that they will build and endow such schools and homes of mercy as we now contemplate.

Why should they not do this, if not during their lives, at least, by legacies to erect buildings bearing their names? Why not thus open fountains of life and healing for these neglected *pariah* children? But shall the *State* delay its interposition in their behalf until private charity shall do the *legitimate* work of the *State*? It did not wait when a school was needed for vagrant and vicious boys. It has no right, and it does not seek, to evade its own responsibilities to care for and educate the children of our common schools. Why then should it demand of private charity to care for vagrant and vicious girls?

Can we not rely upon the cities and larger towns, or the counties to build municipal or local schools and asylums, and thus meet the demand? But if it were done, would it meet the wants of the State at large?

We believe that the effect of creating a State institution in Connecticut, will be as it has been in Massachusetts, to beget local and smaller schools. But ought not the *State*, with its authority and abundant means, to build and support an institution which shall care for the hundreds who have no permanent abode, and no local claims? The City Police Courts, the City and County Jails and Lockups, and Hospitals, do not prevent the necessity of State Courts, and a State Prison, and State Hospitals for the Imbecile and Insane. Why then should a *local* or *municipal* school be relied upon to answer the general want and demand of the State in respect to neglected girls?

We are convinced then, that if the State does not interpose, this work *will* not be done, and that it *can not* be *suitably* done. It is not, therefore, a question whether the plan proposed is the best conceivable plan for attaining the end desired. It may be that a private charity, or a local institution, or a close corporation, would, on some accounts be preferable to one supported and controlled by the State.

But the real question is, shall these hundreds of forlorn and needy children be left to grow up in ignorance, and vice, and come to a certain destruction through the neglect of the State. The State must help, or the end desired will not, can not be done.

2d. *Justice, Humanity, and Religion alike demand the interposition of the State.*

Every child born into the world has a right to a place, and a home, and to an education which shall fit it for the responsibilities which are to devolve upon it. Our common school system is based upon a recognition of this right. It has been the glory of our State that it was among the first of the United States to recognize and to meet this demand. It was said by Plutarch that Lycurgus "resolved the whole business of legislation into the bringing up of youth. He looked upon it as

the greatest and most glorious work of the law-giver. He considered the children, not so much the property of their parents, as of the State, and that each man was born, not so much for himself, as for his country." Under the clearer light of Christianity, and of an advanced civilization, there has been a full understanding and recognition of the obligations of the State to see that the child of the poorest citizen should be so instructed in the great principles of right and wrong, and in the elements of a common school education, that he should be able to know his duties and responsibilities, and discharge them in an intelligent manner. Shall we then disregard these principles in the case of these poor girls, who constitute a class of all others most helpless, and in need of their benefit? Shall we withhold from them the only education which can possibly be given them, and without which their temporal and eternal ruin is alike made sure?

Does not *Humanity* as well as Right demand it? We have erected hospitals for the insane; a school for the imbecile; an asylum for the deaf and dumb; we have costly jails and prisons for confirmed criminals, and a noble reform school for exposed and criminal boys, and what humane heart does not overflow with gratitude to God at the thought of the physical and mental wretchedness thus relieved, and of the multitudes thus rescued from lives of suffering, and degradation, and crime? Does not the same humane spirit demand a similar regard and provision for these moral orphans? these "little ones," who wander about our streets and lanes, in ignorance, morally diseased, and exposed to the severest sufferings, incident to human nature?

Does not the *Christian* Religion reprove our longer neglect of, and cruelty toward, them? It teaches us that God is the Father of the fatherless; that the Son of God came to seek and save the lost; that the most fallen of our race is a man and a brother; and "that he that hath this world's goods and seeth his brother have need, and shutteth up his bowels of compassion toward him, can not have the love of God in his heart." It assures us that Christ himself may be visited, and clothed, and fed, and comforted in the person of these

“little ones,” and that “inasmuch as we do it not unto them, we do it not unto Him.” Does not such a religion add its sanctions to those of Justice and Humanity, and demand that our State shall suitably provide for the rescue of these neglected children?

3d. *There is abundant encouragement to such an enterprise in the success of Juvenile Reformatories.*

Their history and the testimony of their conductors and reports afford the most cheering evidence on this point. There are not less than 800 such institutions in Europe and the United States, and all alike have proved successful in a greater or less degree. They fully demonstrate that juvenile delinquency may to a great extent be prevented by a thorough home and Christian education. So full was the testimony on this subject that a Select Committee of the British Parliament reported, “That it appears to be established by the evidence that a large proportion of the present aggregate of crime may be prevented and thousands of miserable human beings who have nothing before them under our present system, but a helpless career of crime, may be converted into virtuous and honest and industrious citizens, if due care were taken to rescue destitute, neglected and criminal children from the dangers and temptations incident to their position. It appears further, that a great proportion of the criminal children of this country appear to require systematic education, care, and industrial occupation rather than mere punishment, and that various private reformatory institutions have proved successful, but are not sure of support and are deficient in legal control over the inmates.”

In 1859, there was held in the city of New York a convention of Superintendents and managers of 24 of these institutions. Carefully prepared reports were there made in regard to their origin, constitution, character, expense, management and success. They reported a total of 41,711 pupils who had been under their care, 5,073 of them still being in the schools. One-fourth of the whole were girls. The average age was $12\frac{2}{3}$ years. The average annual cost of each pupil was \$97 dollars. The average period of detention was

eighteen months. *The average of successful treatment, was not less than 75 per cent. In several of the schools it reached as high as 95 per cent.* So satisfactory were the results thus demonstrated that the committee by whom these statistics were reported, forcibly said ;

“ Hereafter there can be no incredulity on this subject. These statistics show that God has added His blessing to these labors. All from Maine to Louisiana tell the same history of successful effort. Enough surely has been learned to incite us with increased faith in this good work, faith in humanity, and faith in a God of Benevolence.”

We might corroborate these conclusions by the annual reports of these Institutions. We might especially point to the reports of the school for boys at Meriden, and to the recent testimony of its Superintendent and Trustees. These gentlemen affirm that the happiest results have attended their efforts. They declare that “ after a few months training these boys go from the institution, improved in health, instructed in the common English branches, trained to habits of industry, obedience and system ; capable of pursuing with respectability some useful occupation, and as we hope, in many cases, truly religious boys.” We might add the declarations of the Trustees of the Lancaster school for girls that “ their schools have been successful. Many of the girls,” say they, “ have entered the Institution wholly ignorant of reading, writing, spelling, and even counting. Under the kind, maternal influence of the teachers, they are led to exert themselves to improve, and the progress made in the important elementary branches (to which alone much time is given,) is, considering all the circumstances, *very satisfactory.*”

“ Many of them come to the school with their moral nature scarcely awakened, indifferent to truth and falsehood, stupid, self willed, and almost without natural affection. The good women who take charge of them are almost appalled at the sight. But the memory of success gives them courage. They see in these children the lost ones whom Christ came to seek and to save. * * * They feel that they are in the mother’s place, and the strong magnetism of motherly love

shows its power. The chilled bosom is warmed ; the heart is won, and confidence, affection and respect are established. Slowly the old habits are changed. The tongue becomes truthful. The desire to deceive departs. The conscience is enthroned ; and the love of God, which the child sees to be the vital, moving principle in her new friend takes the sovereign place in the child's soul."

4th. *The Economy of the Provision is an argument in its favor.*

We are not unmindful that to create and support the school will involve a considerable expenditure on the part of the State. But we are convinced that the State *can not afford* to neglect the education, and to have a proper care over the best interests of its exposed and dependent children. And it is on this ground that we next urge the measure proposed. We believe that the amount thus saved to the State pecuniarily, will vastly more than compensate for the expense incurred—entirely aside from the social and humane and moral aspects.

No one can reasonably question the general principle that prevention is *cheaper* as well as *better* than punishment.

"Better build school rooms for the boys,
Than jails and gibbets for the men."

But if any one has doubts on this point, he can easily solve them for himself. These girls are now, and will continue to be, a heavy burden and expense to the communities in which they live, and to the state. The great majority of them, if neglected, will become lifelong paupers, or vagrants, or thieves, or prostitutes. • On the contrary, *if they are supported in an Industrial School for one and a half, or two years, on an average, at a cost of \$2.50 per week, 95 per cent. of them, there is reason to hope, will become intelligent, virtuous, industrious, and useful women.* The average cost of their reformation may be set down as not far from \$250.

Now this but little exceeds the cost of supporting a pauper in an alms house during the same period. It does not equal the amount consumed and destroyed, in various ways, by a

vagrant, or thief, or prostitute, prowling around our towns and streets, and obtaining her living by illicit means. But add to this amount the cost of the repeated apprehensions, trials, and imprisonments of such a girl, and then of her confinement and support for years, in the State Prison, and who can deny that it is ruinous extravagance for the State to neglect that child until her ruin is accomplished.

Said the Chaplain of an English Prison, after showing the cost of ninety eight juvenile criminals to the State, in six years, to have amounted in various ways to £6,063, (\$30,315,) "*They have cost a sum of money which would have kept them at a boarding school the whole time.* Aye! and having lost all this money, in what position are they at the expiration of the six years?" Said the Hon. J. E. Dawley, the late clerk of the police of Fall River, Massachusetts, in answer to an inquiry as to the number of children in that town peculiarly exposed to a life of crime for the lack of proper parental training, "I should say, after consulting the docket of our Police Court, and inquiring as to the subsequent expenses, that the cost of such juvenile offenders as ultimately reach the State Prison, would average \$250. We have had some who have cost much more than this; one as much as \$500."

It should be borne in mind also, that while the reformatory process rescues the child, and renders her virtuous and self-supporting, the neglect of it is followed by a life of waste, mischief, and infamy. If she is committed to the State Prison, she is there to be supported at the public expense for years, and at a most costly rate. If she runs at large as an abandoned woman, her life is to be one of indolence and waste, as well as destructive to everything good. She will be supported in sloth, and often in luxury. She will be clothed in costly apparel at the expense of her victims. She will rob multitudes of young men of their character and manhood, as well as of all that she can induce them to steal from their employers. At length, prematurely broken down by her vices, she will be cast out as useless from her haunts of vice. Ruined in character and health, friendless, helpless and unpitied, she will then be thrown upon the public charity, to be supported

in the hospital, or the poor-house, during her remaining days. Is not then the reformation of such a girl cheaper than her ruin?

The economical aspects of Reform Schools for Juvenile Delinquents have received much attention during the past few years, both in England and the United States. They were fully and ably discussed in the first report of the Massachusetts Industrial School for Girls, a discussion from which we have largely drawn. This and other discussions have clearly and forcibly demonstrated that nothing is so expensive to the State as crime, and especially juvenile crime, and that no State or community can afford to allow the poor and vagrant classes to grow up in ignorance and vice.

It was stated in an English Conference on Reformatory Schools, that a committee of inquiry into the annual depredations of the Liverpool thieves, declared the amount of these depredations to be £700,000, (\$3,500,000.) A Chaplain of the County House of Correction, of Preston, England, shows that a child, who, after a course of juvenile crime, is finally transported to a penal colony, (which would be equivalent to imprisonment for a term of years in the State Prison in the United States,) amounts in various ways to £200, (\$1,000.) At the same rate he computes that for 2,728 under 31 years of age, who are annually transported from Great Britain, she is compelled to pay a bill of cost amounting to £545,000, (\$2,725,000.) He further adds: "Having investigated to a considerable extent the rates of income derived by thieves from their practice, and having obtained the estimates of the most intelligent convicts, I believe myself to be within the real truth, when I assume such income to be more than £100, (\$500.) Allowing only two years' full practice to one of this dangerous class, previous to his sentence to transportation, and, I do not know how to escape the conclusion that, in one way or another, the public has been mulcted to the amount of £1,000,000 sterling, (\$5,000,000.)"

The London Times adds, in view of these statements, "We believe it is no exaggeration to say that every London pick-pocket sent to Holloway Prison, costs the pay of a curate, of

a gentleman with a University education, and whose office is the most dignified that man can aspire to. It has been ascertained that individuals have cost the country several thousand pounds in repeated prosecutions and punishments. Several thousands of homeless wretches, of all ages, can not wander around the streets without an amount of depredation that must tell seriously on the profits of trade, and the costs of living. *In fact, there is nothing so expensive as crime.*" To this it was forcibly added by Alexander Thompson, Esq., of Banchory, Scotland, "I have often thought, when I have passed a little ragged urchin in the street, one of the numerous class trained up to a life of crime and misery, 'My poor little fellow! you are just a bill of exchange for two or three hundred pounds sterling, drawn upon the public of Great Britain, and the last farthing of that sum you will certainly cause us to pay before your career is ended.' " *

There is but one source from which your Commissioners can anticipate any serious objection to this school. In the struggle for our national life, and the support of the rightful authority of the national government against an unnatural and wicked rebellion, our own State has borne a conspicuous and honorable part. She has not only contributed thousands of her sons, and millions of property by private charity, but she has as a state incurred a debt of additional millions and brought upon her people and material interests a heavy burden of taxation. All honor to her for these noble and generous sacrifices. We believe that the results secured by them compensate a thousand fold for them all.

But under these circumstances it is one of the most imperative duties of the Legislature to allow of no *unnecessary* drafts upon her treasury, and that no demand upon it shall be sanctioned unless it can be made plain that she has the means at her disposal to meet it without adding to her pecuniary burdens. In this belief, we have carefully investigated not only the indispensable necessity and the economy of the school

* NOTE.—We refer those interested in pursuing these inquiries to the fuller statements in Appendix E, and also to the Prize Essay of M. Hill, Esq., and the works of Miss Carpenter, of Bristol, England.

proposed, but also the question whence can the amount needed to create it be drawn.

The results to which this investigation have led us, as we believe furnishes a

5th reason in favor of the immediate establishment of the school.

It has clearly shown us that the State has not only abundant means in her *actual* wealth, but that she has them *in hand*; and that there is no present demand upon them. It has shown that Connecticut is not only *actually* the richest State in the Union, in proportion to her population, but that after paying all her ordinary expenses, and the interest on her debt, and \$500,000 of the principal, she will still have an unappropriated surplus of \$357,466 dollars. And not only so that the annual increase of her taxable property renders it clear not only that she may materially reduce the rate of taxation, and at the same time provide for all reasonable contingencies, but pay off the whole debt within less than fifteen years.

In the Report of the Secretary of the State Board of Education for 1866, page 23, it is shown that the amount of the wealth of Connecticut in 1860, in proportion to her population was \$966, while that of no other State exceeded \$850—and that of Massachusetts was but \$662—of Pennsylvania \$487, and of New York, but \$475. That the number of acres of land improved for each square mile in 1860, was in Connecticut, 392, while that in no other State exceeded 321 acres, that in the ten years from 1850 to 1860, the manufacturing capital of Connecticut increased from \$25,000,000 to \$45,000,000, an increase of 80 per cent. while the capital employed in farming increased during the same period from eighty-two to one hundred and four millions, an increase of 27 per cent. And “that Connecticut stands among the foremost in the variety and value of her manufactured products, and manufacturing establishments are rapidly increasing.”

It will be further seen from the subjoined statement that the increase of the amount of the Grand List of the taxable property of the State during the last year, not including Polls,

was \$21,621,773, and during the last two years \$33,860,622. The interest of the last year's increase alone is double in amount to the interest of the whole State debt and shows that it is undesirable for us at once to pay the whole amount of the principal.

The following statement from George Robinson, Esq., the accurate, reliable and long proved assistant in the Comptroller's office, furnishes official and interesting information on the present financial condition of the State.

"In answer to your first enquiry I state that the income of the State from all sources during the fiscal year ending March 31st, 1867, was \$1,913,075.13. To this add the balance in the Treasury, April 1st, 1866, (\$294,401.05,) which makes \$2,207,476.18 as the amount of available funds in the Treasury for the year.

The expenditures for the same period were,			
For the ordinary expenses of the State,	-		\$558,323.58
Interest paid on State Bonds,	-	-	602,994.00
Amount paid for purchase of Bonds,	-		645,675.50
<hr/>			
Total payments during the year,	-	-	\$1,806,993.08
Balance in the Treasury, April 1st, 1867,			400,483.10
<hr/>			
			\$2,207,476.18

The amount of the Grand List of the taxable property of the State not including Polls,

For October, 1864, was	-	-	-	\$254,617,407
" " 1865, "	-	-	-	266,856,256
" " 1866, "	-	-	-	288,478,029

Should the levy of the State tax be reduced to three mills on the dollar on the list of 1866, the amount will be \$929,923.54, which is \$143,425.51 less than was raised last year by a State tax of three and a half mills on the dollar. The other receipts into the Treasury will not probably vary much from what they were last year, and the expenditures will also be about the same as last year; which will leave a considerable balance to be applied towards the extinguishment of the State debt. If the income and expenditures of the State are

kept at their present rates, the State debt will probably be extinguished in somewhat less than twenty years; but it is impossible to make any very definite statements regarding the matter.

I am very truly and respectfully yours, &c.,

GEORGE ROBINSON.

The present liabilities of the State, according to the Report of the Treasurer, over and above assets, are \$7,661,477.56. The estimated receipts, according to the report of the Comptroller, will be \$1,873,206. The estimated expenditures \$1,015,800, leaving an estimated balance in the Treasury, March 31st, 1868 of \$857,406. Of this amount should \$500,000 be applied to cancel the principal of the State debt, (an amount sufficient to pay the whole in less than fifteen years) there will still remain unappropriated March 31st 1868, \$357,406.

Here then is the source from which we propose to draw a suitable amount to rescue these hundreds of neglected and perishing girls from ignorance, wretchedness and ruin, and the State from the burden and disgrace of their life long support and pernicious influence. Is it an unreasonable proposition? Can it rightfully or prudently be denied? Is not the present a most favorable time for doing this work of justice and mercy, as well as of wise economy for the State?

Regarding the considerations thus adduced as a demonstration of the obligations of the State to create and support a Girls' Industrial School, we shall next, in accordance with our instructions, report

IV. A SUITABLE PLAN FOR THE ESTABLISHMENT OF SUCH A SCHOOL.

This plan, we understand, should include, first, a general system of organization and government; and, second, a particular plan, to be adopted by the Assembly, for the establishment of the School.

1st. *What should be the general system of organization and government for a girls' school?*

We answer unhesitatingly, that which is known as the *family system*.

It is so called in distinction from the *congregate system*, which gathers the children into one large building, and governs them by general rules and in the mass.

"In some of the largest and best of the congregate institutions, hundreds of children are brought within a single enclosure—are subjected to the same regulations—sleeping in separate cells, but working, playing, eating and studying in masses."

The *family system*, on the other hand, distributes the pupils into families, varying in number from ten to thirty; each family having a separate house, and, as nearly as possible, resembling a well-regulated private family. A matron, if the school is for girls, is specially selected for her fitness to be its head and mother, assisted by one or more female teachers, who fill the place of "elder sisters" as well as teachers and helpers. In this family the child is placed, after a few days' detention in a receiving house. It is to be her *temporary home* as well as school. She is here brought into close and personal contact with the matron and teachers, and subjected to just that course of treatment and education best adapted to her personal wants.

These two systems, it should be remembered, have the same end in view, *the reformation* and not *the punishment of the child*. They differ only as to the *method* of obtaining it. Each has its decided advantages and its earnest advocates. The *congregate system* is that which has been longest in operation and generally practiced in the United States, and of which the School for Boys at Meriden is one of the best and most successful examples. This plan has been somewhat and successfully modified in the Massachusetts School at Westboro', where boys are first committed to the main building, and afterward transferred, as a reward for good behavior and proficiency, into families. In Europe, the *family system* is the most common, and, of late years, it has been introduced with

the happiest results into several institutions in the United States.

Now, while we cheerfully concede that the congregate system has proved highly successful, and has some advantages over the family system, especially in large cities and for boys, we are at the same time fully of the opinion, that the school for *girls*, which we propose, should be after the *family plan*.

It seems to us the most in accordance with the natural order of things—with that plan which God, from the beginning, ordained as the foundation and the great preservative influence of human society. It seems to us, also, better adapted to the design of the school, which is to *form* and *reform* the minds and hearts of these girls. This cannot be done by any mechanical or external influence, or in the mass, and without the consent and coöperation of the child. Her convictions of right and duty must be enlisted. Her heart must be touched. She must be made to feel that she is an object of love, and is an accountable being; and that her future temporal and eternal welfare are to depend upon her character and conduct. Her moral and social nature must be awakened and rightly directed; and certainly there is no influence so adapted to secure these ends to a homeless orphan as that which places her in a home, under the constant watch and affectionate solicitude and care of those who, for the sake of the child, and for Christ's sake, will seek her individual good.

Then, again, she needs especially to be instructed in the duties and economy of a household—to be accustomed to its daily routine and order—to be taught to sew and to knit, to wash and to cook, and, in a word, to perform all the duties and labors which will devolve upon her if she becomes a virtuous and self-supporting woman.

We will not dwell upon the peculiar dangers attending the congregating of masses of such children in close and constant contact; nor upon the comparative exemption of the family arrangement from exposure to fire and epidemics, and, above all, to social and moral contagion. But we spread before you the opinions of others who, while enjoying special facilities,

have made this subject their life study, and given us the results to which they have been led.

The idea of introducing some of the degraded children of Hamburg into a family was the essential condition of success in the plan of Dr. Wichern, the founder of the celebrated "Rough House School," near Hamburg. There were in that city, when he commenced his efforts for them, "a pauper and a prison school," with large numbers of children in them. "But," said Wichern, "a public '*pauper school*' will never raise above pauperism and vice; and no '*prison school*' can ever enlist the child in his own reformation. A new principle must be developed. The child must be restored to a healthy moral condition, and this can be done alone by placing *the child in the position in which the Heavenly Father would have placed him*—A WELL-ORDERED FAMILY; where his best faculties and dispositions should be developed, and he be prepared to be a useful and self-supporting member of society."

Such was the primary and distinctive feature of Wichern's plan, and to this is owing its marvellous success, and the fact that it is, to this day, regarded as one of the best models of a juvenile reform school.

A few years later, M. Demetz, a distinguished judge of a French court, became deeply interested in the condition and treatment of young French criminals. They were treated like older and hardened criminals, and with the same results which have elsewhere followed, and which must necessarily follow such treatment. In connection with a friend, and under the patronage of a society of benevolent individuals, styling themselves the "Societie Paternelle," he resolved, if possible, to bring about a reform. After visiting the Reformatory Institutions of the United States, and that of the Rough House at Hamburg, he became convinced that the secret of the most successful treatment of juvenile offenders lay in the *family principle* adopted by Wichern. "*Divisions into families, then,*" says he, "*it appears, should be the fundamental principle of every penal and reformatory colony,* and we are happy to see that this conviction, which takes stronger hold on our judgment from day to day, is making increased

progress among our public writers. The division into families renders superintendence, at once, more easy, more active and more zealous; more easy, because it extends over a fewer number; more active, because it makes all the responsibility rest on the head of one person only, whose authority is well defined and prescribed; more zealous, because it produces in the minds of the superintendents sentiments of sympathy and benevolence, under the influence of this responsibility, and of a life spent in common with their charge. The influence of the division into families is no less salutary on the young colonists, the authority exercised being neither imperious nor oppressive. They become attached to their master who loves them, and whom they regard as their confidant and friend. They allow themselves to be more easily influenced and convinced, and while discipline loses none of its vigor, education finds in this mutual affection a lever of incalculable power."

It was under the influence of similar considerations that the Commissioners appointed by the Massachusetts Legislature to propose a plan of organization for a State industrial school for girls, reported in favor of the family system, as that "best adapted to the ignorant, the wayward, the vagrant and even the criminal, and to so change them as to return them to society intelligent, docile, industrious and inoffensive members." "How," they enquire, "can this best be done?" The Commissioners can entertain no doubt that the organization should be that of a *family*, and the government, as nearly as practicable, that of the *parent*. They believe that great moral and religious power abides in the idea of *parental* government and *family* organization, which has not been developed in any public reformatory institution in this country, and that if this legitimate power were wrought out into ultimate action, it would effect far more in the way of reforming juvenile delinquents than measures based upon any other idea.

In accordance with their recommendations, the Lancaster School was founded and has been conducted, and with the most satisfactory results.*

* For a full account of it by the Rev. B. K. Pierce, the first Superintendent, and present popular and accomplished Superintendent of the New York House of Refuge, see Appendix F.

“Take it altogether,” writes Mr. Pierce, “there probably is not a public institution in the world better subserving the great purpose for which it was established, or bringing more honor to the State which gave it birth, than the State Industrial School for Girls at Lancaster.” Equally decisive in its favor is the testimony of a recent Board of Commissioners from the St. Louis House of Refuge, after visiting various reformatories in the United States. Their main building having been destroyed by fire, they were desirous, before rebuilding, of ascertaining whether any modification of their former (congregate) system was desirable. The result of their examination and enquiries was a recommendation of the *family* plan as a substitute. They say “in a large institution in which from one to four hundred inmates are congregated, it is impossible to give the *individual training*, which is the marked feature of a well-regulated family, which has been appropriately called “God’s Reformatory.”

The destruction of the main building of the Massachusetts Reform School for Boys led to similar enquiries and a similar recommendation to the Massachusetts Legislature, and, finally, to the building of three or four *family* houses, in addition to the congregate department. The result has been most happy. The Trustees, in the report of 1862, thus write: “The advantages of the *family* over the congregate system have been demonstrated.” “As carried on,” says the Superintendent, “in our farm and garden houses, the family system is eminently successful.” In the report of 1865, he says: “The reports of these houses show, in my opinion, that the *family system* is *even more economical* than the congregate.”

For the views of the present Superintendent, and of one of the founders of the Lancaster School, we refer to their letters in Appendix A.

We have dwelt thus fully upon this subject from a conviction of its vital importance, and because it involves

2d. *The particular plan of the school which we propose.*

This is substantially the same as that of the Massachusetts School at Lancaster.

We recommend to your honorable body, should you resolve

upon the establishment of a school, the appointment of three commissioners to carry the act into execution, so far as to select and purchase a suitable farm, and erect thereon suitable buildings for the accommodation of not less than ninety girls. A farm is indispensable, for isolation as well as to furnish an abundance of milk and vegetables, two of the most indispensable articles of food. It will, if properly conducted, more than repay the expense of its management. Upon these grounds there will need to be erected, at once, suitable buildings.

There should be houses for the Superintendent and farmer ; a central building which shall answer the twofold purpose of a common school, and a chapel. There should then be erected at least three plain and substantial brick buildings, somewhat separated from each other, each having its own garden and arrangements, suited for a distinct family. Two of these should accommodate thirty pupils each. The third should have additional accommodations and restraints for new pupils, or those who may be returned to the school.

The details of the plan will be arranged by the Commissioners. The expense involved in it will depend somewhat upon the location of the Institution, and the materials used in the construction of the buildings.* We suppose that there will be no unnecessary expense for ornament or luxury, but considerations of durability and safety from fire render it desirable that the buildings for the families shall be of brick or stone. The total expense of the execution of this plan on the part of the State will not exceed \$75,000.

We therefore recommend an appropriation of this amount, with the proviso that no more of it shall be drawn from the treasury than the immediate necessities of the school demand.

* After considerable inquiry the Commissioners estimate, in a general way, the cost of suitable accommodations for ninety girls to be

For Farm, Implements, Stock, &c.,	-	-	-	\$10,000
" Houses for Superintendent and Farmer	-	-	-	10,000
" Chapel and School House Building,	-	-	-	15,000
" Two Brick Buildings for 30 Girls each,	-	-	-	30,000
" One larger Building, with enclosures, and to serve as a reception house, and for 30 Girls,	-	-	-	18,000
				<hr/>
				\$83,000

Our hope is, that its design and success will, ere long, be so fully demonstrated, as to enlist the warmest sympathies and generous benefactions of numerous friends. We believe that benevolent Christian women will remember it in their wills. Thus the means will be secured for additional buildings and foundations endowed, bearing the names of their founders, or of the towns and cities of the State who may do this.

In concluding this already extended report, we submit for your adoption the following resolutions and form of a bill of enactment. We have endeavored to condense our views into the least space which would allow a full presentation of those points which ought to be considered in deciding upon a matter of so much importance. Our chief difficulty has been to reduce into so narrow a compass, a discussion of so many topics, involving many important and disputed questions. We can but hope that our views will so commend themselves to you as to lead to your adoption of our suggestions, and to the speedy establishment of an institution which shall prove an incalculable blessing to thousands of friendless and exposed children, and an honor to our State.

Signed by

T. K. FESSENDEN,
J. P. WHITCOMB.

RESOLUTIONS.

In reference to the Connecticut State Industrial School for Abandoned Women, and Unfortunate, Vagrant and Vicious Girls.

Resolved 1st. That it is inexpedient for the State to establish an Institution for Abandoned-Young Women.

But inasmuch as the Report of the Commissioners to whom the subject was referred by the General Assembly of May, 1866, shows, that they are *several hundreds* of unfortunate vagrant and vicious girls in the State between 8 and 16 years of age, and that they are ignorant, wretched, degraded and exposed, and that a very large proportion of them, under their present treatment, become life-long paupers, vagrants, thieves, and prostitutes, and that they thus impose a heavy pecuniary burden on the State, and are the source of widespread and fearful demoralization ;

And *Whereas*, the report further shows that from 75 to 95 per cent. may be rescued from ruin, and be made virtuous, self-supporting and useful women by being placed in a suitable Industrial School for an average period of one and one-half years, at an average cost of \$195 ;

And *Whereas*, justice, humanity, and the Christian religion as well as considerations of public economy and of the public welfare, demand that the *State* shall exercise a parental care over this neglected, exposed and suffering class ;

And *Whereas*, the Commissioners have reported a suitable plan for the organization of such an institution.

Therefore, *Resolved 2nd.* That there shall be established in this State a State Industrial School for Girls.

Resolved 3d. That the sum of \$75,000 is hereby appropriated from the State Treasury, for this purpose to be drawn on the warrant of the Comptroller at such times, and in such sums as shall be needed for the purposes of the institution,

by the proper officers, and with suitable vouchers for all expenditures.

Resolved 4th. That the Governor shall appoint three Commissioners who shall, as soon as is practicable ;

1st. Select a suitable location and secure by gift or purchase, a suitable farm, and a deed to the State thereof, in case of purchase.

2nd. Procure the necessary plans and estimates, and contracts for the erection of, and cause to be erected at once, such buildings as shall be required for the use of not less than ninety girls, and of the officers and assistants of the school, in substantial conformity to the general principles and method of organization and government set forth in the Report of the Commissioners herewith submitted ;

3d. And who shall, upon the completion of the buildings, give notice to that effect to the Governor, and transfer them into the care of the Trustees to be appointed. And

4th. Who may meanwhile take such measures as they shall deem proper to awaken an interest in, and if possible procure contributions for the use and further enlargement of the institution.

Resolved 5th. That should any town in the State, by a majority of the votes given at a town meeting legally called and duly notified of the purpose, authorize its selectmen to give to the State a suitable farm and buildings for the use of the school, and upon the acceptance thereof by the State, to lay a town tax to defray the cost of the same, the said action shall be lawful and valid.

Resolved 6th. That the said Commissioners are authorized to present their accounts to the Governor and Comptroller with proper vouchers, and when such accounts are approved and certified by them, they shall be paid by the State Treasurer on the order of the Comptroller, provided that the amount shall not exceed the sum above appropriated for the school and such other sums as may be given for its use from other sources.

[STATE OF CONNECTICUT, 1867.]

AN ACT

To Establish a State Industrial School for Girls.

Be it enacted by the Senate and House of Representatives in General Assembly convened.

Name and Design.

SECTION 1. There shall be established in this State an institution to be named *the Connecticut State Industrial School for Girls*.

The design of the school is to furnish a suitable place for the religious, mental and industrial education of unfortunate, exposed, evil disposed vagrant and vicious girls between the ages of eight and sixteen years.

Trustees.

SEC. 2. There shall be a board of seven Trustees, to be nominated by the Governor and appointed by the Senate in whom shall be vested the general government and oversight of all its concerns, and to whom the land and buildings shall be transferred by the Commissioners as soon as the Governor shall make proclamation, that the buildings are ready for occupancy.

When two years have expired after the first appointment of a board of Trustees, two Trustees shall be appointed annually, and the places of the two senior members as they stand in the order of their appointment shall be annually vacated, they being eligible for a re-election; and the board having the power to supply vacancies occasioned by death or otherwise until the next meeting of the General Assembly. No Trus-

tee shall receive compensation for his services, but he shall be allowed the amount of expenses incurred in the discharge of his official duties, on the warrant of the Comptroller from the State Treasury.

Duties of Trustees.

SEC. 3. The trustees shall see that the affairs of the institution are properly conducted, and in accordance with the laws of the State; they shall examine and certify its accounts; they shall ordain and see to the enforcement of its by-laws, which by-laws shall be binding on all concerned when not contrary to the laws of the State, and may be amended by vote of five of their number at their annual meeting; they shall appoint, regulate the duties and salaries of, and if need be, remove the officers; they shall be the guardians of the girls during the term of their commitment, unless they are discharged or otherwise provided for; they shall see that suitable instruction and employment are provided for them in the school; that they are transferred to suitable families or places of abode at the earliest period consistent with their highest good and that they receive just and equitable treatment from those to whom they are committed on leaving the institution. The Trustees shall discharge all the functions usually incumbent on such trustees, but shall borrow no money upon the credit of the State, nor make any outlay for the school beyond the appropriations already made by the General Assembly, except from funds derived from other sources than the State Treasury.

Annual Meeting and Reports.

SEC. 4. The trustees shall hold an annual meeting at which they shall carefully review the history of the institution during the year, and everything pertaining thereto. Shall receive and accept the reports of their officers. They shall make an Annual Report to the Legislature, with a copy of their by-laws. They shall hold their first meeting on the call of any three of their number.

Superintendent.

SEC. 5. A superintendent shall be appointed as early as the trustees shall see fit, whose duty shall be to exercise a particular supervision over the inmates, buildings, lands, and other kinds of property on the precincts of the institution. He shall reside at the institution, and devote himself faithfully to its interests. He shall, before entering upon his official duties, give a bond to the State Treasurer, with acceptable securities, in the sum of \$2,000, conditioned upon his faithfully accounting for all monies and property received by him as superintendent, and discharging the duties incumbent on him. He shall keep full and accurate accounts of all his receipts and expenditures, and of all property entrusted to him. His books and papers relating to the school shall at all times be open to the inspection of the trustees, who shall, at least once in every six months, carefully examine the same, with their vouchers and accompanying documents, and make record of such examination. He shall make all his contracts for the institution in writing, and shall faithfully execute all such duties as shall be prescribed by its by-laws.

Treasurer.

SEC. 6. There shall be a treasurer appointed annually by the trustees, into whose custody shall be given the funds belonging to the institution and appropriated by the State. He shall keep a clear and full account of all his receipts and payments, which shall at all times be open to, and shall be faithfully examined by, the trustees, at least once in six months. Before entering upon his office, he shall give a bond to the State Treasurer, of not less than \$5,000, with acceptable securities, conditioned upon his faithfully accounting for all monies belonging to the institution committed to his care.

Mode of Committal.

SEC. 7. The several Judges of Probate in the State are hereby directed to hear, and examine, and determine any application that may be made within their districts for the com-

mittal of a girl to the school ; and upon the request of any board of selectmen, or of overseers of the poor, or mayor, or aldermen of any town or city of the State to the Governor. It shall be his duty to appoint and commission one or more discreet and suitable persons among the citizens of said town or city, and it shall be their duty to hear, examine, and determine any such application in that town or city, until their resignation, removal, or death, or the expiration of their term of commission ; and all such judges and commissioners shall receive such fees and compensation for their services as are by law allowed to justices of the peace, and all officers serving process of law under this act shall be entitled to the same fees as they are legally entitled to for serving processes in criminal proceedings.

Summons and How Given. Trial. Form of Warrant.

SEC. 8. When a girl between the ages of eight and sixteen years shall be brought by a constable, police officer, or other inhabitant of the State, before such judge or commissioner, upon complaint that she has committed an offence punishable by fine or imprisonment, other than imprisonment for life ; or that she is leading an idle, vagrant or vicious life ; or has been found in any street or highway, or public place, in circumstances of want and suffering, or of neglect, exposure, abandonment or beggary, the judge or commissioner shall issue and cause to be served in the usual way, a summons to the father of the said girl, if possible ; if not, to her mother ; or if neither are to be found, to her guardian, or to the person with whom she claims to reside, or if there is no such person, the judge or commissioner may appoint some suitable person to act in her behalf, requiring of him or her to appear at a particular time and place, to show cause, if there be any, why such should not be committed to the institution.

At the time appointed, the judge or commissioner shall proceed to examine the girl, or any party appearing for her, and if the girl is found to be a suitable subject for the institution, and that her welfare and the public good demand that she be

sent thereto, he shall commit by warrant, substantially as follows:

“To (A. B.,) one of the constables (or police officers) of the town (or city) of _____ you are hereby directed to take charge of (C. D.,) a girl between the ages of eight and _____ years, who has been proved to me to be a suitable subject for the State Industrial School for Girls, and require its care, and discipline, and education, and deliver such girl, without delay, to the superintendent of school, or to such other person in charge thereof, and for so doing, this shall be your warrant.

“Dated this _____ day of _____ 18 _____ at _____ in the county of _____ State of Connecticut.”

The warrant shall be executed by the officer to whom issued. Accompanying the warrant, the magistrate shall transmit to the superintendent, by the officer, a statement substantially of the complaint and testimony, and such further information respecting the girl as he may think best to give.

How Girls brought before Justices may be Committed.

SEC. 9. When a girl between eight and sixteen years is brought before a trial justice, or court of criminal jurisdiction, charged with any punishable offence, and the justice is of opinion, that, if found guilty, she would be a fit subject for the said school, a decree to that effect shall be entered on record; and thereupon, such justice or court shall, by a warrant, cause such girl to be brought forthwith before some authorized judge or commissioner, and transmit to him the complaint or warrant on which she was arrested; and he shall thereupon have jurisdiction as if she had been brought before him upon an original complaint.

SEC. 10. If a girl previously committed to the school is brought before a judge or commissioner upon any complaint already named, he may examine the case and issue his warrant for committing her to the school without issuing the summons first required.

Appeal.

SEC. 11. Any girl ordered to be committed, may appeal from such order in the manner provided for appeals from trial justices; and the case shall be entered, tried, and finally determined in the court to which the appeal is made.

Term of Commitment.

SEC. 12. All committals shall be until the age of twenty-one years, or until otherwise discharged.

Girls may be Discharged.

SEC. 13. The Trustees may discharge and return to her parents, guardian or protector any girl, or transfer to another institution, with her own consent, any girl who in their judgment ought to be removed from the School. And in such case record shall be made of her name, the party or institution to which she was returned or transferred, the date and cause of her removal, a copy of which shall be forthwith transmitted to the judge or commissioner by whom the girl was committed.

Girls may be Indentured or put to Service.

SEC. 14. The Trustees may bind out as an apprentice or servant, or as a ward, to suitable persons, any girl committed to the school until she shall arrive at the age of twenty-one years. The person to whom she is bound, being required to report to the Trustees, as they shall prescribe of her character and conduct, and present locality. And the Trustees, and master and mistress, or guardian shall respectively have all the rights and privileges and be subject to all the responsibilities attached to such persons in the act respecting the domestic relations.

Indentures not Transferrable.

SEC. 15. A person receiving an apprentice under the above provisions shall not assign or transfer the indenture of apprenticeship, nor let out her services without the written consent of the Trustees. If the master, for any cause, de-

sires to be relieved from the contract, the Trustees may at their discretion cancel the indenture, and resume their charge and full control of the girl, as before her indenture.

Violations of, How Corrected.

SEC. 16. In case of complaint by any girl of the violation of the terms of the indenture, or of any wrong treatment by the person to whom she is indentured, the girl or Trustees may make complaint to the judge or commissioner aforesaid, who shall summon the parties before him and examine into the complaint, and if the complaint shall prove to be well-founded, he shall thereupon discharge the girl from all obligations of future service, and restore her to the charge of the Trustees as before indenture.

May be Assigned.

SEC. 17. Upon the death of the master to whom the girl is bound to service, his executor or administrator, with the written consent of the girl, and the approval of the Trustees may assign the indenture to some other person; which assignment shall transfer to the assignee all the rights, and subject him to all the responsibilities of the original master.

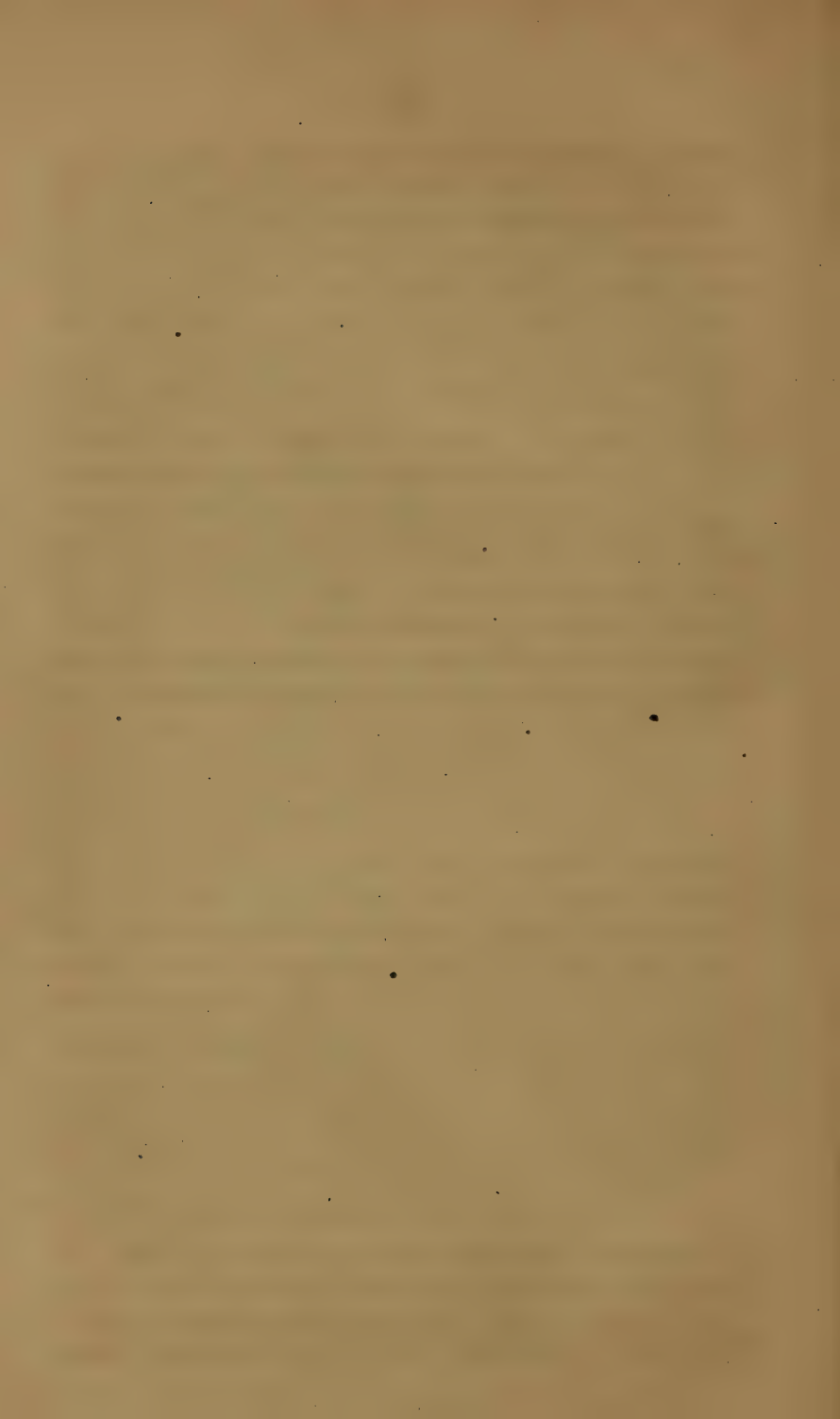
SEC. 18. The Trustees shall be the guardians of every girl so bound or held to service; shall take care that the terms of the contract are faithfully fulfilled, and that she is properly treated; and shall especially enquire into every case of alleged grievance.

SEC. 19. The City or Town in which any girl committed to the school has her legal residence shall upon notice by the Treasurer of the School, pay the Treasurer fifty cents a week toward her support in the School, and such City or Town may recover any sum so paid of the parent, kindred or guardian liable to maintain the girl.

SEC. 20. Any parent may commit his child, and any guardian his ward to the said School for such a term as shall be mutually agreed upon by such parent or guardian, and the Trustees, and upon the Judge or Commissioner aforesaid

certifying that the said child is a suitable subject for the school, and on condition that the said parent or guardian shall pay the expenses of the child, while at the school quarterly, in advance and at the rate determined by the Trustees—which sum shall be uniform in all cases, and cover the entire expenses of the child while at the school. And in case of a failure of the parent or guardian to pay the sum thus stipulated the Trustees are authorised to institute an action for the recovery of the same.

SEC. 21. There shall be taxed quarterly in each year in the months of January, April, July and October, by the comptroller of public accounts, the sum of two dollars for each week's board, as well as for the other expenses of each girl committed to the school, and the Treasurer shall make his bill therefor, and present the same to the Comptroller, who shall tax and allow such bill on his finding it to be correct, and the same shall be paid the State Treasurer.



APPENDIX A.

From the Hon. F. B. Fay, one of the Founders of the Lancaster School, and long connected with it as a Trustee and Treasurer.

SOUTH LANCASTER, MASS., Nov. 10th, 1866.

MY DEAR SIR, I have your favor of 27th ult. addressed to "R. B. Fay," which I suppose was intended for me. I can hardly do justice to my views upon the subject to which you refer in a single letter. It is a great work, not merely a philanthropic but essentially a philosophical work. No man can plan or carry out this work successfully, who has not thoroughly studied the workings of the human mind, and who does not discriminate minutely, upon the effects of different situations, circumstances, and influences which serve to make us what we are. When this is done, and done thoroughly, and acted upon in a Christian spirit, I think we shall find that these subjects or pupils, are mostly if not all, patients and not criminals, more sinned against than sinners, and are entitled to our pity and not displeasure. What they need is to eradicate or root out the corrupt, vicious seed sown by corrupt or faithless parents or guardians, and supplant in their ductile, tender minds, virtue, truth, morality and religion. Now sir, I think no mental philosopher will rationally expect to succeed in this work, by threats, coercion, punishment, or denunciation. These children are unfortunate creatures who have been neglected or abused, and deserve no punishment, and yet the design and plan of all our public reformatory institutions is to punish as well as reform. Now sir, allow me to say that in my opinion, no individual was ever reformed by severity. They may be restrained, subdued, but never reformed. To be reformed one must see and prefer the right. One undergoing punishment sees nothing but injustice and oppression, and harbors no feelings but resentment, hatred and revenge. Now sir, in room of crying out like the Jews, crucify them, punish them, I would say, "Father forgive them, for they know not what they do," and if any of them were really sinners, if I wished or hoped to reclaim or reform

them, I would say to them, "Neither do I condemn thee, go and sin no more." In a word, until all idea of punishment, (except what is incidental to the main object, reformation,) is abandoned in our institutions, our efforts will never be attended with the desired success. The above remarks are but a text to my views upon this subject, but I must proceed.

The Family System.

1st. God established the family system. Is man so presumptuous as to assume that he can improve upon it?

2d. To operate successfully and effectually upon a human mind, individual sympathy and direct contact is indispensable. We must first create love, or at least respect and confidence, before they will heed our counsel, and this must be private, individual, kind, affectionate conversation, showing up the contrast between good and evil, accompanied by a little praise, to create self-respect, (without which you can do nothing.) This can not be done in the congregate system, where the managers hardly know all the subjects by name.

3d. In a congregate system there must be fixed rules, to which all must submit. Now sir, every one conversant with human nature, knows that the influences or discipline brought to bear upon one individual or child, operating with complete success, will have directly the opposite effect upon another of a different disposition and temperament. This being the fact, it becomes the duty of managers to study the disposition of each subject, and adapt his government of that subject to that disposition. Hence the necessity of a small number on which each manager is to operate.

4th. In the congregate system there must be ten or twenty masters or mistresses, which is destructive of all rational government.

5th. In the congregate system, (and I regret to say to some extent in the family system,) all the natural processes or modes of government in a family are abandoned. The child is in a prison, under lock and key, surrounded by walls, obliged to wear a uniform, subject to straight-jacket rules, the smallest violation of which is punished; no forgiveness, no liberty, under constant espionage and distrust, no freedom of thought, of action, no self-control or self-government, no opportunity to think, plan or design for themselves, and to practice voluntary resistance to temptation, all the time under dictation, and moved by wires. When and where is their opportunity to practice self-control or self-government, sufficient to enable them when turned out upon the world, to buffet and resist the trials and temptations of life? and rather

than expecting, should we not rather consider it almost a miracle if one succeeds?

* * * * *

To have any hope of a pupil, you must first secure their love, or at least confidence, and what is equally important, self-respect. The germ of all morality lies in self-respect; without this you have no foundation to build upon; therefore we must not tell a child they are bad, but that they have committed errors, and that we did when young, but have overcome them. Constant harping to a child that they are bad, they will soon believe it, lose self-respect, and will become bad, if they were not before. Again, there should always be a little praise mingled with our instruction. Commendation is sweet to all of us, and what other compensation do we offer them for their efforts or services? Praise is excellent food for the growth of self-respect. But enough of sermonizing upon a subject that you understand better than myself.

You ask, "Do we want more than fifty acres of land?" That depends on the extent of your institution. When we purchased our estate, I was asked, "What do you want of a farm for girls?" Answer, 1st. I want to keep other buildings at a distance, that would prove a nuisance by proximity. 2d. We want land enough to furnish milk and vegetables for the inmates, and not be dependent upon a milk and vegetable cart. 3d. We want to keep cows enough to furnish butter for the families, and the girls taught how to make butter, &c., that they may find employment when discharged, in farmer's families.

"Houses." That depends upon taste, only not have them large enough to hold too many. If I was to consult my own views alone, I would have small wooden houses, capable of accommodating say ten or twelve girls, with a matron, &c., and thus increase the number of houses, and decrease the number of inmates in each, thus approaching nearer the common family. This is the case at Mettre, in France, where there are some ten or fifteen houses, and similar arrangements at the Rough House establishment in Germany, near Hamburg, which commenced with three boys, taken by an individual.

You speak of a receiving house. Practically I think this would prove inconvenient. You would sometimes have it empty, and sometimes overrun without notice. You speak of increasing your accommodation as wanted. *You need not fear getting too much. We built three at first; have added two more, and if we had ten houses, they would soon be filled.* Every little while we are obliged to publish a

notice that we can receive no more at present, until some come of age, or are indentured.

About Cost. Our first cost of three brick houses, a house for superintendent, another for the farmer, and a chapel, with some ninety acres of land, was \$40,000, one-half raised by private contribution. We have since added two more houses, and some thirty acres of land; the whole cost is about \$60,000.

I will not burthen you further with my crude thoughts, and will only say, it will give me pleasure to afford you any aid in my power.

Yours &c.,

FRANCIS B. FAY.

From Miss L. A. Proctor, Assistant Superintendent of the State Industrial School for Girls.

LANCASTER, MASS., Dec. 22d, 1866.

REV. THOMAS K. FESSENDEN,

DEAR SIR, I write you in Mr. Ames' behalf, he having given me his ideas upon the various topics of inquiry in your letter of the 7th instant, which should have received earlier attention, had not the pressure of engagements prevented.

1st. We have "no doubt of the superiority of our general plan to a congregate establishment."

(a.) We think thirty a sufficient number in one family.

(b.) We consider only those girls who give reasonable promise of reformation, as suitable subjects. But so varied is our success, some, who appeared at first to be most hopeless cases, proving most thoroughly reformed, and *vice versa*, that we find it very difficult to decide, except by patient trial, who is really "unsuitable."

(c.) We do not suppose so large a farm as ours is necessary. Indeed, some would consider it preferable, so far as expense is concerned, to dispense with the farm entirely, although ours has thus far been so managed as to more than pay its own way. It is desirable to have the grounds sufficiently extensive to render the situation somewhat isolated. Where there is a farm connected with such an institution, milk being considered a very desirable article of food, there should be sufficient pasturage and mowing. Our farm is deficient in pasturage. A good and extensive garden spot is also essential, and arable land adapted to a variety of grains, to supply the inmates with good and wholesome varieties of food.

2d. We do not find our buildings too large ; they might be less expensive. The school-rooms in the brick houses are uncomfortably small ; also we would be glad if the rooms for the teachers and house-keepers were of the same size as the matron's. We do not know what furniture could well be dispensed with in our houses, without decided inconvenience, in teaching the girls habits of order and propriety.

(a.) It is the testimony of all our ladies that a single room for every girl would be a great assistance in the work of reformation. Salutary impressions made at evening worship are often dispelled at the hour of retiring, by the mingling of the girls, and the facilities afforded for instruction in vice, are sometimes improved to an alarming extent.

(b.) We are satisfied with the present arrangement of our houses, that is, with having them alike.

3d. Mr. Ames prefers the school-rooms arranged as ours, one in each house, because, had we a common school-house, the girls would necessarily come in contact with a larger number of corrupted minds, and experience proves that the more limited their acquaintance with each other, the better. Some of our ladies feel that the opportunities afforded for classification by the arrangement you suggested, would be a decided advantage, so far as mental progress is concerned.

4th. The earnings of the inmates, we regard as of little account. What with school every afternoon, general housework, family sewing and mending, &c., we keep most of our girls, except the younger members of the family, well occupied. It is no small matter to teach such girls to do housework, and their own sewing, properly.

5th. Our girls assist in the care of the dairy, but we seldom have one of sufficient judgment and carefulness, to be capable of taking, or of learning to take charge of a dairy. We should think it undesirable to have more cows than will be required to furnish milk and butter for the institution.

6th. We are satisfied with our State laws relative to commitments.

7th. Our superintendents salary has recently been raised to \$1,800, beside house-rent, and \$200 for the use of his horse and carriages for State purposes. He furnishes his house himself, and board also. Our matrons have \$300 ; teachers, \$250, and house-keepers, \$225, clear of all expenses.

8th. Average period of detention is two years and five months. There are constant calls for our girls, but we do find difficulty in securing just the places needed by such girls. Most of them need peculiar management, and judicious, patient men and women, are not common. We would not lessen the time of their stay with us ordinarily.

9th. Mr. Ames thinks you will not need to commence with more than two or three families.

L. A. PROCTOR,

Assistant Superintendent.

From the Rev. B. K. Peirce, Chaplain of the New York House of Refuge, Randall's Island.

NEW YORK, (HARLEM P. O.,) August 28th, 1866.

REV. AND DEAR SIR,

I am very happy to respond to your requests in your letter mailed the 25th. I had the honor to be a member of the Massachusetts Senate when the State Industrial School was established, and felt a lively interest in its success. An elaborate report was made by Commissioners, with drawings, to the Legislature of 1855. Appointed a trustee, I had the honor of drawing up the code of discipline and by-laws. Appointed superintendent in 1856, I had charge of the institution for six years, and made six annual reports.

* * * * *

I have no hesitation in view of the considerations which you suggested in my study, in giving my cordial approval to the plan proposed for your school of reform for girls.

The experiment at Lancaster has, on the whole, been so successful that there can be but little question as to the practicability, wisdom, and economy of the system upon which it is established.

Experience suggests a few improvements. One family house should be larger than the others, with accommodations for discipline, for hospital purposes, &c. This should be the receiving house, and in this house girls returned for misconduct should be placed. From this, they can be detailed into the small family houses.

I would not have a school-room connected with the family houses, for this is not in accordance with the family idea; but I would have it in a separate building, where the children of the different families can assemble and be classified according to their proficiency. A work-room also, for such other industries as may be secured, in addition to house-work, might be arranged in the same building.

It will be a matter of consideration with you, whether you would have your Sabbath services in the main school-room, or in a different edifice, or secure a privilege to worship in a village church. There are some objections to the latter, arising out of the age and character of some of the girls that may be sent to such an institution.

To try the experiment, you would need, at first, a superintendent's house, this larger family house, and one smaller, cheaper building, into which you could begin to detail the girls to form a more compact family organization.

These small houses, coming within the limits of the benevolence of Christian gentlemen and ladies, might be constructed by donations from time to time, and bear such titles as the donors are pleased to place upon them.

The Massachusetts law, it seems to me, covers nearly every thing that could be desired. Both the law and the title of the institution, (Industrial School,) defend the subject from any serious stigma arising from her connection with it.

I shall be happy to answer any specific questions that may be suggested in the progress of your report,

And remain fraternally yours,

B. K. PEIRCE.

Second Letter, March 23d, 1867.

I should say decidedly from seven or eight to sixteen years, as the limits of age in your law. There will be scores of girls sent to you whose parents will swear that they are under the legal limit, who are nearer twenty than sixteen. You will need the defence of this moderate age in some instances of precocious physical and criminal development, while your officers can be permitted (as ours do,) to wink at the committal of older girls, where there seems to be really a promise of doing them good. Some girls are maturer at fifteen than others are at eighteen. We had a girl said to be fifteen, at Lancaster, who had a living child at home, a year old.

Seven and sixteen are reasonable limits. A justice sent to our institution the other day, a woman twenty-five years of age!

2. I should say yes to the smaller and cheaper buildings, for twenty-five inmates. The great trouble, however, in multiplying small wooden buildings arises from the increased liability to fire. This is a serious problem, and needs to be most thoroughly studied. Think of a fire among half a dozen wooden buildings, full of girls, with female officers! Little vicious girls are peculiarly disposed to show their resentment by setting the building on fire. Be sure and have efficient arrangements to meet such a probable exigency. Cheap brick buildings, for the above reason, will be preferable to wooden. The smaller the number of inmates, the more readily controlled, and the less liable to commit such an offence as above suggested.

I insist strongly, you know, for one good-sized building, where all can be received, disciplined a while, and then detailed to the small families.

3. When the Commissioners reported that the farm was purchased, and the style of houses agreed upon, the Governor at once appointed a board of trustees. This board organized and sent word to the Commissioners that they were ready for any communication that they might make. Several united meetings were held while the buildings were being constructed. Sometime before the completion of the first house, the trustees elected a superintendent, and he removed to the farm. When the buildings were completed, they were formally surrendered by the Commissioners to the Trustees. The latter did nothing but suggest opinions to the Commissioners in reference to the cost of construction; the former had nothing to do with the election of officers or arranging the internal discipline and detail of the institution. The Commissioners simply carried out the plan of building the first houses, which they had reported to the Legislature. All additions were made under the supervision of the Trustees. The Chairman of the Commission was the leading Trustee.

From J. M. Talcott, Esq., Superintendent of the Providence Reform School.

PROVIDENCE, August 31st, 1866.

MY DEAR SIR,

I have your favor of 23d instant; will send the reports you desire, and briefly answer your questions. The work you are appointed to inquire into is an important one, not only to the individuals it proposes to reach, but to the State which extends the reaching hand. That there is a large and increasing number who require protection and restraint in such an institution as is contemplated in your appointment to inquire, is beyond any question. They exist in every community, especially in large towns and cities, and the duty of looking after, providing for, and of placing them under healthful influences for both mental, moral and physical training, is most imperative. No State or community can wash her hands and be guiltless, which shut her eyes to the condition of these, and leaves them to become, as they surely will, a prey to other influences, which abound every where, and which will surely lead to ruin, both in this world and the world to come. The class, and it is not a small one, exists. Poverty is not a crime, but the poor girl, unprotected, uncared for, with none to love, counsel or guide her, will

almost surely, and that too, early, be treading the downward way, and to escape the evils of poverty will fall into sin, and such sin as will involve not only herself and others of her own age and sex, but many among the boys as well, in that ruin so sure to follow. This being the case, the great questions are, What are the duties of the State to these? and how can these be best performed? These are too important questions to be answered understandingly, without entering into minute details, which I do not now propose to do. One thing, however, is obvious. A Home—(not a Poor-House Home,) should be provided for them. Many of them would not at first appreciate or value such a home; therefore a place for restraint is necessary, and one too, where perfect classification could be made, to avoid evil influences so sure to corrupt. In order to this, I do not think five houses, as at Lancaster, Mass., necessary, or even as good, if economy is taken into account, which should be, largely, in all such enterprises, and very little if any thing is gained, either in physical, mental or moral culture. Warming, ventilating, cooking, &c., &c., can be much better done, as well as at much less expense, (proportionately,) on a large scale, while for nearly every purpose of moral economy, and successful discipline, there need be no loss. I therefore would say one home, properly appointed in its arrangements, would be better, even to accommodate five distinct classes, than five homes for one hundred and fifty girls. Its location and appointments should depend much upon the age and classes of girls to be admitted. As to the number of girls who need, yes absolutely require such a home, there can be no doubt. Every city and village has more or less of them, and they are constantly becoming worse and worse, and are doing a fearful work for others. I have no doubt provision would be wisely made for one hundred and fifty, at first, while all arrangements should be such that additions could be made without marring the symmetry of the original. As to the time of detention, I should say all or nearly all should be placed in the care of such a home "during minority," or till twenty years old, at least, while the time necessarily spent in the home would depend almost entirely upon circumstances, the character of the girl, her daily conduct, previous history, &c., &c., as also, if a suitable home could be had for her outside the institution. Prostitutes, as a rule, should be returned the full term; exceptions, would be where health demanded a change, or when a family, with the most healthful influences, would undertake her care. In the case of nearly all others, the sooner it can be so understood as to know what kind of a home she needs, and such a home can be found, the better. A large farm, unless you need men

around to prevent escape, which I consider the most expensive and objectionable kind of a wall, is not necessary or well; a little land for garden, milk, &c., is well, and girls could with comfort and benefit to themselves, do most required; some of the heavier work would require men. I should say, land sufficient for pasture and hay, with a large garden, suited to such vegetables, &c., as girls could well cultivate, would be best.

As to our success if we estimate for one class, the "rule" is, cures or reform, none; "exceptions," few; evils prevented," not easily estimated; this class, "voluntary prostitutes." From other classes I see no reason why we should not estimate the good performed as equal to that among boys of like age and circumstances. Those sentenced for prostitution are often among our best girls, in the home with us, but I am sorry to report but few are reformed. The good we do in these cases is the prevention of evil they would do at liberty. Some claim that a vile girl, under twenty years of age, leads as many as one per month with her, but if she takes but five per year, how great an evil she is doing. Who can count its sum? And this with her own sex; and what shall we say for the other sex? What father would not willingly pay, if able, the whole expense of keeping her in the home contemplated, rather than have a son fall under her influence? But is it said she will be older and stronger, therefore more efficient for evil at twenty-one? True; but she will then seek another class; not boys and girls, but men and women; and it is to prevent and cure juvenile delinquency, these institutions are designed. Save the children and youth; bend the growing twig, and we need have but few fears for the tree; that is, the man and the woman. May you be guided wisely, and my "old native State" be up to the demands of the age in relation, not only to her erring boys, but girls as well.

Truly yours, &c.,

J. M. TALCOTT,

Superintendent.

B.

From Rev. C. C. Darling, Chaplain of the New York Magdalen Institution.

About thirty years ago, several benevolent and christian women of this city, witnessing the degradation and wretchedness of inmates of the "Alms-house" and the "Penitentiary Hospital," were induced to make an effort for the reformation of those who had become the victims of vice. The influences to which they were subjected in public institutions were far from moral improvement. Impressed with the conviction that the reformation of this neglected class was practicable, an association of ladies of influence and piety was formed for the special benefit of the fallen and the outcast. A spacious edifice, five miles from the city, was procured, and economically furnished. The services of a matron, possessing sympathy and moral excellence, were obtained, and with the approbation of the magistrates, several debased women were transferred from the Penitentiary to the Magdalen Asylum. The house was arranged with dormitories for one individual. Three-quarters of an acre of ground were enclosed with a fence of sufficient height to prevent an escape of any who might be so disposed, furnishing ample space for exercise and recreation.

Useful employment was introduced, and instruction given by a competent assistant of the matron. The services of an evangelical clergyman, for the moral and religious instruction of the inmates, were also obtained, which have been continued to the present time.

The necessary expenses of the institution have been defrayed by personal application to a benevolent and christian community, often under circumstances most discouraging; but amidst prejudice, incredulity and opposition, the friends of virtue and religion have prosecuted their self-denying and arduous work, trusting in the sacred promise, "Your labor shall not be in vain; for in due season you shall reap, if ye faint not."

The Magdalen Institution of New York has never been controlled by the Legislature of the State, nor by the city government. Occasionally, a small donation has been presented from the City Treasury. Our *worthy* magistrates have cheerfully offered their protection when necessity required, and have frequently availed themselves of the advantages of the asylum by sending youthful wanderers to the care of this society, rather than incarcerate them, even for a brief period.

The want of sufficient room to classify the inmates and to introduce various employments suited to the capacities of the inmates, has ever been an important defect, and has diminished the usefulness of the institution. This difficulty, however, will soon be removed by the erection of a larger and more commodious edifice. The house now occupied will accommodate but sixty individuals, and is unsuitable for the purposes for which it is designed.

The experiment, hitherto, has been successful, and the results have exceeded the expectations of the most sanguine of its friends. There has been a steady progressive movement in the right direction; friends and patrons have multiplied, and the means necessary to sustain and carry forward this benevolent work have been supplied.

The firm belief that the gospel of Christ is pre-eminently adapted to the wants of the most debased, and that its influence extends to the deep abyss of crime, warrants the expectation of success. If debased *heathen* can be reformed and saved, why may not those who are at our very doors. As our criminal institutions are proverbially "hot-beds of vice," till the fallen and debased are brought under a direct moral and religious influence, there appears scarcely a ray of hope of their reformation.

To prevent vice, kind, endearing, attractive home influences, must be thrown around children and youth, suitable and remunerative occupation must be provided, the turpitude of sin, and its sad consequences, must early and judiciously be impressed upon the mind, and the pure and holy principles of the gospel be patiently and perseveringly inculcated.

To rescue the tempted and the fallen, is often a difficult task. Surrounded as they are with vicious associates, and furnished with ample means to gratify *idleness, ease* and *luxury*, deceived and ruined by false and treacherous friends, to induce confidence, or to inspire hope of ever again rising to respectability or usefulness, seems almost impossible.

The haunts of vice must be visited with the Bible and christian counsel; the influence of magistrates, if necessary, must be obtained, to break up the abodes of vice, arrest their occupants as vagrants, or commit them to institutions of reform.

The Magdalen Institution of New York has seen the fruit of its labors in the restoration of many to endeared relatives, and to society. Some of the objects of their charity now sustain reputably the family relation; scores have been employed in religious families and enjoy the confidence of their employers. Several have united with evan-

gelical churches, and have adorned their profession. Some have finished their course on earth, and have found rest in heaven, of whom it may truly be said, "They were dead, but are alive again; they were lost, but are found."

An asylum, under the direction of wise, judicious, christian ladies, superintended by a suitable matron, and its inmates furnished with religious instruction, by patient and persevering exertion, may accomplish much for the benefit of the fallen, and shield effectually those whose character is in imminent peril.

From Mrs. A. M. Philipps, Matron.

HOME FOR THE FRIENDLESS, }
SPRINGFIELD, MASS., July 24th, 1866. }

I am glad that christian men and women are beginning to see the great need of such institutions, and more than that, are willing to hope and labor for the Magdalen. I hardly feel competent, however, to give advice, or even suggest anything, as this Institution is a private charity, and still in its infancy, having been established but little more than a year since. In that time we have been very successful, considering our means and opportunities. I can hardly go into details in this letter, but will mail with it a copy of the First Annual Report, which will tell you better than I can, what has been done, and our reasons for encouragement.

When the Home was first established, it was thought advisable to keep the abandoned who came under our care not less than two, and not more than four weeks, then find them homes in families, or places in shops; but after a little, experience taught us that they did not gain much moral strength, but were only rested and recruited only to be led back to evil courses by vicious companions. Then it was proposed, at a meeting of the Board, that we enlarge our borders a little, provide employment whereby they might earn something to the Home, and keep them here not less than six months, and as much longer as the managers might deem necessary for the entire reformation of the subject.

Our house is small, not accommodating more than twenty-six persons at a time, and many of them young children. Its management and training is that of a christian family, and we endeavor, not only by precept, but example, to lead them in the way of better things.

You ask if they can be induced, voluntarily, to give up their evil companions and associations? I answer, yes. One poor girl, without

father, mother, or relative on earth, and by whose sick couch I am watching to-night, begged of one of the lady managers to know if there was any place where she could live right, and have help. She has been here about eight months, and for the last three, has shown the most beautiful spirit, and I am firm in the faith that she lives very near the cross. Another, who is still with us, called with a companion one evening, so intoxicated she could scarcely talk, and catching a glimpse of our sitting-room, went to one of the ladies and begged to be admitted. She came, and up to this time has not faltered in her purpose to become a useful woman.

These two cases are both orphans, bound out from the State Alms-House at Monson, one of them led into evil by the same *man* who promised to be both father and guardian to her.

Other cases I might cite, but think these sufficient. Most of those who have come under our care are orphans, left to the tender mercies of society, or perhaps I should say, of a selfish and unprincipled age.

One thing is certain, they need sympathy, affection, a kindly interest in all their little tastes and feelings. Sometimes, it is true, it is necessary to exercise sober, stern discipline; many times sharp rebuke, or positive restraint, is indispensable; yet, comparatively, we have little trouble, and seldom need to exercise severity.

You will understand that our experience with this class has not been extensive; but this we do know, the work grows upon our hands, and every day I see the need of more laborers in this portion of the Master's vineyard.

You ask me relative to the cost, location, &c., of the Institution. I should say, build a large, commodious house, on high ground, where they can have plenty of pure air, soft water, and land enough for a vegetable and flower garden, and plenty of room for exercise. Fill up their waking hours with pleasant changes of work and recreation, and so lead them lovingly to leave the bitter past behind them, and press on to the best the future can offer. Be sure you teach them to be industrious, for only in active employment is there safety for any. Do not mind the cost, but get your "distaff ready, God will send the flax."

I grow more hopeful and strong in the work each day, and may God bless and prosper every undertaking of this character, is the sincere prayer of one who loves humanity.

I should be happy to see you at the Home, and will be glad to give you any information my limited knowledge of this work will permit. By all means establish such a refuge in your State, and give the poor

Magdalen the privilege of returning with the prodigal to her father's house, if she will.

Yours in the bonds of Christian Charity,

A. M. PHILLIPS.

REV. T. K. FESSENDEN.

C.

One of the most common enquiries of the Commissioners has been, "How are you to obtain the control of these girls, and how and by what authority shall they be committed?" It is thus happily answered by the Commissioners of the Mass. Legislature for a State Reform School for girls, (p 22.)

"In order to form an intelligent opinion upon the subject, it was made a point of particular enquiry in their intercourse with managers and overseers of similar establishments. They found but one opinion entertained; and that it was exceedingly desirable that no Juvenile delinquent should enter the Institution with the stigma of a criminal conviction resting on her. Such a circumstance is apt to produce a continual state of obstinacy and contumacy in the subject, and to dissipate all hopes of recovering character and standing. It is often true that children brought up in poverty and vagrancy, idleness and finally petty theft, or perhaps in the commission of worse crimes, under the direct instigation of brutal parents, become so insensible to the degradation of their condition, as to be unaffected by the disgrace of a conviction at the time. But if they are taken from such situations and reformed, having their tastes elevated, their feelings refined, new hopes inspired, it is difficult, if not impossible for any others to understand and appreciate the depressing effect of such an incident on their lives. The consciousness of their early misdeeds, may be quite as much as they can bear; to have superadded a knowledge of them recorded in the form of a public verdict and spread among those with whom they are to sojourn, and thus to be brought to mind by the taunts of the worthless and malicious, must produce great mental suffering, if it do not even a relapse,—especially do the Commissioners regard this as true of girls. * * * * They can-

not become insensible to the disgrace thus inflicted. The excellence of her character and the texture of her delicacy would be destroyed by the presence of qualities that would render her insensible to charges of this kind brought against her. And it is deemed an important matter to avoid such exposure as far as possible.

By the laws of France, children found guilty of minor violations of law, such as ordinarily render the accused, the proper subjects of a Reformatory School, may be, (at the discretion of the Court,) acquitted on the ground that they acted *without discernment*, the supposition being, that the offences by them committed, were done without that adequate perception and appreciation of their unlawfulness, that is embraced in the idea, and constitutes the essence of crime. But such acquittal does not operate as a discharge. The Court retains jurisdiction and entrusts it to the care of friends, or to some Reformatory Institution, where its training and reformation will be properly attended to. In this way the humane idea of the law is carried out to great public advantage. The school at Mettray is principally composed of persons so acquitted and disposed of by the Courts.

With a view of obtaining the same object, it is proposed that all who are sent to the contemplated Institution shall be sent by Judges of Probate, or by Commissioners appointed for that purpose. It is therefore provided in the accompanying Bill, that such Commissioners shall be appointed and that Judges of Probate shall be clothed with the necessary powers. Before these officials, children shall be brought who are presumed to be proper objects for State care, and the question to be decided is not whether the person is guilty or not guilty of a particular allegation, but whether she manifests such a character and disposition, or is found in such a condition, and surrounded by such circumstances, as make her a fit subject for the Institution. In case she be found so, it is provided that with the child there be sent to the Institution, a statement of the reasons and grounds on which she is committed; embracing the substance of the testimony taken. This is deemed important as a means of enabling the Institution to know and to adapt its discipline and instruction to the correction of the particular evils developed and also for any other public purpose. But all that the community is ever expected to know is, that she is adjudged to be a suitable subject for this school. Rights of parents and kin, are deemed to be sufficiently protected by the right of appeal, as in criminal cases, or by the right of petition

to the Trustees, who are clothed with power to restore children to friends whenever they deem it best for them; and they will have every inducement to do so, when it can be done with safety and propriety."

D.

What shall be done for these Girls?

It is evident that the routine of ordinary schools will be quite inefficient here. The work of training and instructing must be combined with that of eradicating and repressing. Free scope must be given for the development of the individual nature, combined with a firm control. In endeavoring to effect this, the following suggestions, which are the result of the writer's experience, may be found useful:

1st. The physical condition of these girls will generally be found very unsatisfactory; and it is well known that the moral state is much influenced by the physical. All sanitary regulations for ventilation, regular and sufficient personal ablutions, suitable temperature, &c., should be strictly attended to. The advantage of agricultural labor not being procurable, walks beyond the premises, as well as out-door play, should be regularly taken by the girls, and as much bodily exercise as possible should be devised for them in their daily industrial work, as an exercise of their physical energies. The food shall be sufficient, and of a more nourishing description than is allowed in most pauper schools. On this point considerable stress has been laid by medical men of high scientific experience. These children have been accustomed to a stimulating life, to feasting and fasting, and to various exciting elements. Unless the system is properly sustained under the change, it will sink.

2d. The young girl is to be placed, as far as possible, in the same kind of position as children in a well ordered family in the working classes. She has been accustomed to be independent of authority, and to do only what is right in her *own* eyes. *She must now feel under steady, regular restraint, administered with a firm, equal, but loving hand.* Her irregular impulses must be curbed. She must insensibly, but steadily, be made to feel that it is necessary for her to

submit to the will of *others*, and especially to be obedient to duty. The regular training of the school-room will greatly contribute to this, and all those nameless arrangements and manœuvres to preserve order and discipline, which are found so valuable in good British and National Schools.

3d. Children in this class have hitherto felt themselves in a state of antagonism with society, and totally unconnected with the virtuous portion of it. The Matrons, Chaplains, and even Governors of the jails they came from, have usually been the only persons whom these children had been able to call their friends, and are often most gratefully remembered by them. They must, as far as possible, be brought to feel themselves *a part of society*, regarded by it with no unkind feeling, but rather, having been outcasts, welcomed into it with Christian love, and entering into it as far as their own conduct renders this possible. Nothing in their dress or appearance should mark them out as a separate caste; as far as it is found safe and expedient, they should be enabled to associate with others; and, under judicious restrictions, persons of virtuous character and loving spirit should be encouraged to visit the school and have intercourse with them.

4th. *The affections must be cultivated as much as possible in a healthy direction.* The love of their families must not be repressed, and the natural ties must be cherished, as far as can be done without evil influence being exerted over them. The school must be made a home, and a happy one; but the children must be led to feel that the possibility of this depends on their own forbearance and kindness towards each other. Mutual dependence must be cultivated; as in actual society, they must be made to feel that all must often suffer through the misconduct of one, while the good conduct of every individual is a benefit to the whole number, to the school in general. They will then learn to feel it a duty and a pleasure to help each other in difficulty, and to be watchful over each other's conduct, from no censorious feeling, but from a simple regard to each other's benefit, and to do what is right.

5th. The activity and love of amusement natural to childhood should be cultivated in an innocent and healthy manner. These cannot be repressed without great moral injury, but they may be turned to good account, and made the medium of conveying most valuable lessons on the rights of others and the nature of property, or even of imparting useful knowledge. The children should be allowed to possess little toys, and articles treasured by childhood, which they may be permit-

ted to purchase with earnings awarded them for work done. The valuable exhibitions now open to ordinary schools may be allowed to them occasionally, especially as a reward for good conduct. The Dioramas and Zoological Gardens may open their minds, and give a stimulus to the advancement of knowledge, more than any other lessons.

6th. All rewards and punishments should be, as much as possible, *the natural consequences of actions*. Deceit or dishonesty will occasion an amount of distrust, and watchfulness, which a judicious teacher may render a very severe punishment to a child. The employment of bad language, and the indulgence of a quarrelsome disposition, will require separation from the society of others as a necessary consequence. All punishments should be administered with the greatest caution and impartiality, and should be evidently prompted by a desire to do good to the offender; the sympathy of the school, and even of the culprit, will thus be enlisted with the teacher. There should be no bribery to do right, nor deterring by fear, only, from doing wrong; a desire of improvement and love of duty should be cherished *for themselves*. Hence, *artificial* stimulants to good conduct, especially such as excite a desire to *excel others*, should be especially avoided in these schools: they foster many bad passions. The children should rather be stimulated to surpass *themselves*; this will be greatly aided by a regular and impartial record of conduct, which should be frequently reviewed.

7th. As much freedom should be given as is compatible with the good order of the establishment. Those who prove themselves deserving of confidence may have situations of trust given them, and may be sent on errands beyond the premises. *It is only in proportion as there is liberty, that security can be felt in the child's real improvement.*

8th. The intellectual powers should be steadily *trained*, though not superficially excited. It is only by giving the mind wholesome nourishment, that it can be prevented from preying on garbage. Many are chary of intellectual instruction in these Schools, as if they were doing a wrong to the working classes by imparting knowledge to these. We are conferring a boon on them, by reforming, in the best way we can, those who, if neglected, may do them an irreparable moral injury.

9th. After the preceding remarks, it is hardly necessary to say that every effort must be made to infuse a good *moral tone* into the School. It will certainly exist if the preceding principles are well carried out. When a new-comer or a badly-disposed child finds the feeling of the

School in harmony with obedience, order, and duty, and that public opinion, *which is strongest when it proceeds from equals*, is in opposition to everything wrong, the work of the Teacher will be incalculably lightened.

10th. The *will of each individual child must be enlisted in her own reformation*, and she must be made to feel that, without this, the efforts of her Teachers will be useless. Such confidence must be awakened in the minds of the children towards their Teachers as to lead them *willingly* to submit to all the regulations for order, neatness, and regularity, which are an important part of their training, and to yield themselves implicitly to their guidance. From this the child must be taught to *feel obedience to the Divine Will to be the highest happiness, and to desire to obey that will*.

In the Red Lodge Girls' Reformatory School, of which reports are sent herewith, attempts have been made to carry out the principles contained in the foregoing suggestions, and the success attending them gives ample ground for encouragement, while the difficulties arising from a long training to vice, in many cases render the work extremely difficult. Very interesting instances might be given of the fresh awakening of conscience, the struggle with evil, the warm attachment evinced by these poor girls to their teachers. But it is felt very undesirable to give publicity to the sacred confidence of what ought to be a *home*. The plan alluded to in the report, of opening a small house for the further training of the more advanced girls, has been commenced with much promise of success. Four girls, whose conduct has been for some time satisfactory, are there placed under no more restrictions than would be exercised over young servants in a well-regulated family. Their greater freedom thus tests their real character, and better prepares them for service than immediate transition from the school.

Several other Girls' Reformatories have now been commenced in England on the same general plan; one, that of Allesley Farm, near Coventry, is giving a training for *farm service* to a small number of girls, who have thus the advantage of rural occupations. One only of these schools is calculated to receive a large number of girls. It is doubtful whether it is desirable, under any circumstances, to assemble together more than fifty of these very peculiar and excitable girls, over each of whom some *individual* influence should be maintained by the superintendent. There should, if possible, be separate establishments for those under and above the age of fourteen, and, where they

are in the same school, there should be as much separation between them as possible. Further experience in this work will lead to important results on both sides of the Atlantic. May all who are laboring in it be supported by Divine grace; and may our mutual efforts strengthen each other's hands, and thus be doubly blessed. Amen.

APRIL 21, 1857.

E.

The Cost of Crime.

From an admirable paper on this subject, prepared by the Rev. B. K. Pierce, and published in the first report of the Mass. Girls' Industrial School, we derive the following statements and opinions:

"In 1852, the City Marshal of Boston says, in his annual report, allow me to renew my appeal in regard to the young in this city, and to the large and increasing number of poor and destitute children of both sexes, who are growing up in vice and crime. In an investigation made to ascertain the number thus exposed, between the ages of 6 to 16, 1064 were found,—880 males, and 182 females. My opinion is, that of the whole number, from 800 to 900 (from neglect and bad habits,) are not fit to enter our common schools. From the best information I can obtain, I am satisfied there are not less than 1500 of them in Boston, at the present time. I earnestly call your attention to them, and the necessity of providing some means to have these children properly brought up, either at public or private expense. *I am fully satisfied it will cost the State and City more for police courts and prisons, if they are suffered to go at large, than it would to take them now, maintain them, and make them useful citizens.*"

"It can hardly," writes Mr. Pierce, "admit of a query which will be the most economical for the State, to place herself at once '*in loco parentis*,' assume the burden, support and train them for some useful stations when they reach their majority, or leave them in their present neglect and viciousness, to become inevitably the prodigals of her court house, and the population of her jails. * * * There is no difficulty in following up the ever increasing sum of expense incident

to the discovery and punishment of crime, far enough to show that it exceeds the cost of the training of the young criminal under christian auspices." After showing that the State expenses for the criminals of Massachusetts, for the five years, from 1851 to 1855, inclusive, amounted to \$1,383,379.90, the writer adds: "What an impression upon the public morals and economy might have been made if one-quarter of this sum could be expended during five years upon the destitute and exposed children of the commonwealth! It should not be forgotten in the calculation that no reference can be had to the immense outlays which have been made in the construction of the prison, and of the various county and municipal jails, of the poor houses, which ultimately receive a portion of the neglected childhood which escapes the prison, of the salaries of the judges and officers of justice, incident to the penal process of defending the community from the inroads of crime. Neither have we any estimate of the large amounts taken in acts of larceny, by the criminals during the period they are out of confinement. This certainly amounts to their living, and often it is a very generous living. This latter tax is all the more onerous to the public, from the fact that it is unequally laid upon them, and the suffering, in individual cases, is often severe."

The reasons for these opinions are given at length, and in a most satisfactory light.

In Dr. Barnard's volume on Reformatory Education, page 307, we find a most instructive report of the conferences on Preventive and Reformatory Education, held at Birmingham, in 1851 and 1853. The effect of publishing these proceedings, says Dr. B., was to give a powerful impulse to the reformatory movement in Great Britain. These reports are especially full and satisfactory on the cost of Crime, and the economy of Reform Schools.

The chairman of the conference, M. D. Hill, Esq., Recorder of Birmingham, thus discourses on the subject of cost: "We doubtless have the power of postponing our duty to these unfortunate children, and it must be confessed that we exercise this privilege freely. We have the power of letting them grow up in ignorance, vice and crime; of neglecting the plant when young and tender, and of toiling to make it straight when old and stiff. But in this, as in all other debts, we pay the most usurious interest for our procrastination." After showing that the cost of a boy's reformation at Stretton on Dunsmore, an English Reformatory, was, on an average, \$155, and at Mettray, in France, where it is far more thoroughly done, was \$210, he contrasts with these amounts the cost of a neglected and criminal boy's support.

“He wanders about the streets without control; he forms habits of idleness, learns to gamble, is precocious in debauchery, and we let him alone. At length he becomes cognizable by law; but unless he is singularly unfortunate, his career is not yet run. In the course of time, he appears before the magistrate, for what is called his first offense, meaning thereby his first detection. A short imprisonment ensues, just long enough to dissipate any unfounded horror he may have entertained of a jail, to blazon his name on the criminal roll, and make him acquainted with the body of which he is now a full member, and to turn his mind to the advantage of exercising his profession in such a manner as to escape the casualties incident to his way of life. On every committal, he is told to take warning, and he does take it, though not in precisely the same sense in which it is given. He receives it as a warning, not against crime, but against detection, and acts accordingly. Nevertheless, in spite of all his care he falls, from time to time, under the animadversion of the law. Now I am putting aside all higher considerations, and pinning myself down to pounds, shillings and pence. Fix your attention on the necessary cost of the process. Ordinary individuals require only the care of a physician, when the body is ailing, and of a clergyman, for their spiritual maladies; but your malefactor demands the constant care of a suit of attendants belonging to neither of these professions. He is apprehended by one or more of the police, who, having sacrificed much time and labor to obtain an introduction to him, attend him to his new home with the most watchful care. His apartment in this home, or, as it is usually termed, his cell in the prison, is by far the most expensive dwelling which he ever entered, except in pursuit of plunder; and the number and salaries of those who minister to his wants, form an item of cost to which his private life has no parallel. When the proper hour arrives, he is handed to his carriage, and set down at the stipendiary magistrates. * * * And not only is the time of the magistrate employed in his affairs, but the aid of lawyers is called in,—a class of men who have never been open to the reproach of undervaluing their services. Now to all the expenses of the prosecution, which are paid out of the public funds, such as the salaries of the judges and recorders, counsel and attorneys, and the various officers of the courts, and gratuities to witnesses, you must add the time occupied by grand and petty jurors. At length, after the drama of apprehension, trial, conviction, warning and short imprisonment, has been repeated until it has lost all its interest, either to the actor or audience, the criminal arrives at the *‘ultimum suppli-*

cium' transportation, a most expensive process, as I will show. A petition was presented to parliament by the magistrates of Liverpool, in the session of 1846. This petition set forth the cases of 14 young offenders, *impartially chosen*, by which it appeared that these 14 persons had been repeatedly committed to prison, none less than eight, one as many as twenty-three times. The cost of each of these 14, in apprehensions, trials and imprisonments, was, on an average, £63.-8, (\$317.) Not one of them was reformed; ten of them were transported, the cost of which, and their support in the penal colonies, must be added. That of control and residence in the colony will be £54, (\$270,) at the least. So that each of the ten who were transported have cost the country £145.8, (\$727,) *more than three times that of a reformed thief at Mettray*, and five times as much as at Stretton on Dunsmore. So great is the *pecuniary* advantage of *conversion* over *perversion*."

Rev. W. C. Osborn, Chaplain of the Bath Jail, said:—"When I became chaplain of the Bath jail, in July, 1843, I determined to keep an accurate account of all the children who might come under my care. During the first year there were about 98 children sent to jail, of which number less than 55 were first committals. During the following years I kept a strict account of these children, and the result has been of the most disheartening character. You will be surprised to be informed that within six years these children appeared in our jail no less than 216 times. I ventured to lay before a committee of the House of Commons a statement of the expense of these children. I will not trouble you with the details; but I may say that the result of the calculation was this:—that having been in our jail for an aggregate period of $27\frac{1}{2}$ years, having been committed 216 times, we find that in the 6 years subsequent to their first committals, their cost to the public, by imprisonment, prosecutions, plunder and destruction of property, by their maintenance in unions, (making a fair allowance for their supposed occasional and temporary earnings of honest industry,) can not be estimated at much less than £6,063, (\$30,315.) They have, consequently, been living most expensively upon the country. In fact, they have cost a sum of money which would have kept them at a boarding school for the whole time. Aye, and having lost our money, in what condition do we find them at the expiration of six years? Fifteen of them have been transported, five have died, five of them are living we know not how, or where; but there are about thirty of them in a condition which must, sooner or later, issue in their being sent to one of our penal colonies. The children com-

mitted for the first time, in July, 1844, (pursuing the same mode of calculation,) have, in five years, cost about £4,000, (\$20,000); and those committed in 1845, for the first time, have already cost £2,000, (\$10,000.) Now in the returns laid before Parliament, it appears that there were, in 1848 and 1849, throughout the country, not less than 7,000 first committals of persons under 17 years of age; and assuming that Bath presents a fair average of cost, the amount lost to the country, or expended on these children alone, who are committed for the first time, is £500,000, (\$2,500,000,) per annum."

Rev. John Clay, Chaplain of the County House of Correction at Preston. "What would it cost, on the one hand, to give two or three years' moral and industrial training to a neglected child, who would otherwise enter upon a course of life destructive to himself, and dangerous to society. Upon the Red Hill plan, it would cost say, for the three years, £75, (\$375.) Upon the Aberdeen plan, which seems to me admirably adapted to the circumstances of a large town, the cost would not exceed £20, (\$100.) But on the other hand, what would it cost the community to permit such a child to pursue its course through a sea of crime until it is landed at one of our penal colonies? By the last report of the Inspector of Prisons for the home district, it appears that the entire number of persons sentenced to transportation in 1849, was about 3,100, of whom, it would appear, 43 per cent. are under 21 years, and 45 per cent. are between the ages of 21 and 30 years of age. Now it is not taking too much for granted to say, that criminals sentenced to transportation before they reach the age of 30 years, have commenced their criminal career at a time when they should have been learning a better way. But society has *ignored* their existence. Let us see what society pays for its indifference. Offenders are not generally sentenced to transportation before they have appeared at the bar four or five times. I will suppose the expense of their prosecutions to be £50, (\$250.) The average imprisonment of each offender, *before* transportation, may be taken at three years, and the expense of it at £65, (\$325.) Three years probation in separate confinement, at Parkhurst, or public works, £50, (\$250); removal to the colonies, £35, (\$175); total, £200, (\$1,000.) So that, when 3,000 sentences of transportation are passed in a year, we may consider that tantamount to a notification to the public that a last installment of a sum exceeding half a million sterling, (\$2,500,000,) is about to be called for! To be as precise as the nature of this inquiry will allow, the 2,728 convicts under 31 years of age represent a cost waste of £545,000, (\$2,725,000.)

The financial results are thus summed up by M. Hill, Esq., in his prize Essay on Juvenile Delinquency, p. 203: "Enough, surely, has been advanced to demonstrate, not only the utter futility of the principles on which our juvenile delinquents are disposed of, but the startling waste, also, and the extravagant expenditure occasioned by the gaol system. The average duration of a criminal career has been ascertained to extend over five years and four months. The five years spent in an industrial school would have as efficiently fitted a member of our dangerous classes for honest livelihood, as our gaol system does, in the same period, for transportation. The sum expended on children in imprisonment is more per head than parents in easy circumstances, and among the middle classes, can afford to pay out in a boarding school education. To our $7\frac{1}{2}$ millions sterling, raised by assessment, for the relief of paupers, we add, as it has been conjectured on reasonable data, another $7\frac{1}{2}$ millions contributed spontaneously by a charitable subject, and in addition to this £15,000,000, we allow ourselves to be assessed by private acts of theft, and by judicial mismanagement, to an amount that raises the fifteen into twenty millions sterling annually. Or, taking McCulloch's estimate of the national income as about £350,000,000, we are paying nearly five per cent. for the support of the pauper, vagrant and thief."

F.

VI.—STATE INDUSTRIAL SCHOOL FOR GIRLS.

AT LANCASTER, MASS.

THE success of the Farm School for boys, on Thompson's Island, in Boston Harbor, suggested to Hon. Theodore Lyman the noble donation to the State which resulted in the establishment of the Reform School for boys at Westborough.

Why should not equal provision be made for the neglected and vicious girls of the State, who were in even greater peril, and whose ruin would entail more serious consequences upon the community? was the question naturally suggested and persistently asked by benevolent men and women, until it was appropriately answered in the es-

establishment of the *State Industrial School* for girls at Lancaster, Mass.

As early as the Legislature of 1849, petitions, numerous signed, were forwarded to the "General Court," for the establishment of a "State Reform School, for Girls." In 1850, commissioners were appointed to consider the subject and to report. A favorable report was made and referred to the succeeding Legislature, and was again after discussion, referred in 1853. In the succeeding year, Governor Washburn commended the subject very warmly in his message to the consideration of the Legislature. A resolution was passed appropriating twenty thousand dollars for this purpose, providing the same amount should be raised, within six months by private donations. Commissioners were also ordered, to be appointed by the Governor, to select a site, to prepare plans, and to propose the appropriate legislation for the establishment of such an institution.

The money was raised, and Messrs. John H. Wilkins, Henry B. Rogers, and Francis B. Fay, were appointed as commissioners to carry out the spirit of the resolves.

The site selected was an old brick mansion, in the ancient town of Lancaster, situated upon a fine, high lawn, embowered in elms, and surrounded by a farm of one hundred acres, (since increased to one hundred and forty,) sloping downward to a branch of the Nashua river. The lawn was increased in size and made symmetrical by the generous gift from the town of the old common, or training field, that laid unimproved in front of the estate.

The large, square "Stillwell Mansion," by the outlay of a few thousand dollars was made to answer, quite conveniently, for one of the family houses. From the adjoining mountain, water was brought down in pipes, in sufficient quantity, and of an adequate "head" to meet all the wants of the institution, and to be distributed in every portion of it.

The site was everything that could be desired, and was secured at a comparatively small price. To the indefatigable labors of Col. Fay, who deserves, for many reasons, the title of "father" to the institution, the State owes the admirable location of the school, and the marked economy attending its establishment.

After a careful examination of the plans of the more prominent European and American institutions, for the reformation of juvenile offenders, and calling to their aid the practical thinkers and writers upon this delicate question, the commissioners reported to the Legislature, a system of organization and discipline, called, to distinguish it,

the "family plan," following quite closely the arrangement of the institutions for boys at Mettray, in France, which was at that time attracting more attention among the friends of reform, than any other in Europe or America. Heretofore every public institution of the kind in this country had been upon the "congregate plan," constructed very similarly to penitentiaries, but made more comfortable, and wearing no penal aspect in their discipline. Greater indulgence than is permitted in a penitentiary, was allowed in passing in and out of the limits of the reformatory, on the part of the children, and the officers were expected to hold a parental relation to the inmates, but still these institutions were included within walls, and the dormitories were closed by locks and bolts.

But the commissioners proposed that, at Lancaster, separate buildings should be constructed capable of accommodating thirty girls in each. That each house should be a separate family, under its appropriate matron, assistant matron, (who should also be the school teacher,) and housekeeper. All the work and study of the family, it was arranged, should go on under its own roof. No walls enclosed the village of homes that it was proposed to erect, and no fastenings defended the windows of the sleeping rooms from offering their facilities for the escape of the inmates. It is an interesting fact only two girls have succeeded in escaping from the school since its establishment, and these during the first six months of its history.

In each house it was proposed to distribute a portion of the older and of the younger girls—thus keeping up the idea of a family and securing the easier performance of the housework. The older girls were to have separate rooms, while the younger slept with a monitor in an open dormitory.

The work proposed for the girls was housework, the making of their own garments, knitting and such plain trades as shirt making and straw braiding. From these sources, in the experiment of ten years, the time of the children has been fully occupied, when not engaged in school or in their necessary recreations.

The only change in the manner of committing subjects to the school from that pursued at Westborough, was the particularly happy arrangement to avoid the disgrace and taint of the court room, by appointing special commissioners to hear the complaints against the children, and constituting judges of probate, *ex officio*, commissioners for this purpose. By this means, also, the institution, it was thought through the more careful supervision of special officers, would be

saved from being overrun by a class of hardened and hopeless criminals, or by diseased and idiotic children.

Girls were permitted to be sent between the ages of seven and sixteen, and were, at first, committed until eighteen years of age. Since its organization, the trustees have received power from the Legislature to retain the custody of their subjects until they are twenty-one. As in other institutions, the trustees were empowered to indenture the girls, after having bestowed upon them sufficient training in the schools, to good families in the State or beyond its borders.

The report of the commissioners was accepted, and immediate steps were taken to provide buildings for the reception of inmates. The name by which the institution was known, in order to defend the girls committed to it, as far as possible, from any disgrace arising from their connection with it, was changed from "Reform School," to "Industrial School."

The institution was publicly dedicated, and the first house opened Aug. 27th, 1856, and was, in a few months, filled with inmates of various ages, and, a large proportion of them, of American parentage. This somewhat remarkable fact, although the proportion has sometimes varied, has continued to characterize the subjects of the school until the present time.

The new houses were constructed of brick, two stories in height, very neatly and conveniently finished, at an expense of about twelve thousand dollars each. By April, 1857, the third house had been opened, and, in January, 1860, the fourth.

In 1861, the fifth, and last house, a wooden dwelling house fitted up for the purpose, was provided to meet the constantly increasing demand for accommodations. From the opening, the capacity of the school has always been fully taxed, and there has been scarcely a month when the rooms have not been uncomfortably crowded, and applications from Commissioners declined.

A convenient house, already on the grounds, formed a pleasant residence for the Superintendent, and another for the farmer. A neat, white, village church, standing unoccupied, was removed at small expense, and placed upon the lawn; and thus, five homes capable of receiving one hundred and fifty inmates, two family residences, and a pleasant chapel, were secured at an expense of but little over, (\$60,000,) sixty thousand dollars.

For the first six years the institution was under the care of Rev. Bradford K. Pierce, now Chaplain of the New York House of

Refuge. Since his resignation, the present excellent incumbent, Rev. Marcus Ames, has conducted its affairs with great prudence and most encouraging success. The Superintendent unites in himself, the legitimate duties of his office, and the delicate and responsible labors of the Chaplain.

On last October, when the last report was made, there had been received into the school 464 inmates; there were present at that time, in the different homes, 132 inmates, and 234 had been returned to friends, or completed the term of their indentures. The remainder had been removed to hospitals, or alms-houses, or discharged as unsuitable.

Without doubt, a large proportion of these girls are now living honest and pure lives. Some of them are filling quite conspicuous positions, as teachers or matrons in similar schools, who seemed at the time they were sent to the institution, predestined to a life of sin and sorrow. Many have not fulfilled the expectations excited in their behalf, and are now wandering amid the retributions of the life of a transgressor.

The close and beautiful relation existing between three Christian women and thirty young girls, sitting at the same table, and forming one circle in family prayer, and all domestic and social duties and enjoyments, must have, as the experiment has proved, a powerful and redeeming influence. It is possible that the Industrial Home may have been so pleasant and so light in its exactions upon the girl, that sometimes, she has turned away dissatisfied from a somewhat rough and exacting country home; or an ambition has been aroused for other employments than house-work, and, in the failure to gratify this newly awakened taste, the temptation to turn aside to the paths of sin may have been awakened afresh. It may also have happened, that the difficulties attending the indenturing of the girls have induced the retaining of children too long in the school. All institution life is unnatural, and no child should be retained in any one, however improving, longer than is indispensable to prepare the child for the natural home in a family, where it must, certainly, ultimately live. We should never weary of the experiment of placing the child in a home. If it fails in one, it may find a congenial atmosphere in another.

All these tendencies and open problems are constantly in the thoughts and discussions of the cultivated and benevolent gentlemen that watch over the interests of this favorite institution, and the

highest success that human wisdom can secure for it will be their earnest and constant endeavor to attain.

To the writer, it would seem an improvement to this admirable system, to have one larger building, where all the inmates should be, at first received, and afterward be detailed to the various homes. This building might admit of some restraint, as all attempts to escape are in the first weeks of a child's connection with the institution. In this building might also be the rooms of the Superintendent's family and the public offices. Here also accommodation could be provided for girls returned from their places, or sent back by the Commissioners after their discharge. Such girls often exercise an unhappy influence over one of the families, by the stubborn tempers or vicious habits which they usually bring back with them.

It would be better, the writer thinks, not to have separate schools in each family, but to have one school house, and all the children attend there, as they meet in Chapel. This would admit of better classification and instruction, and break up in a measure, the somewhat monastic character of the institution life.

But, take it altogether, there probably is not a public institution of reform in the world, better subserving the great purpose for which it was established, or bringing more honor or satisfaction to the State which has given it birth, than the State Industrial School at Lancaster.

B. K. PIERCE.



Length 308 feet.

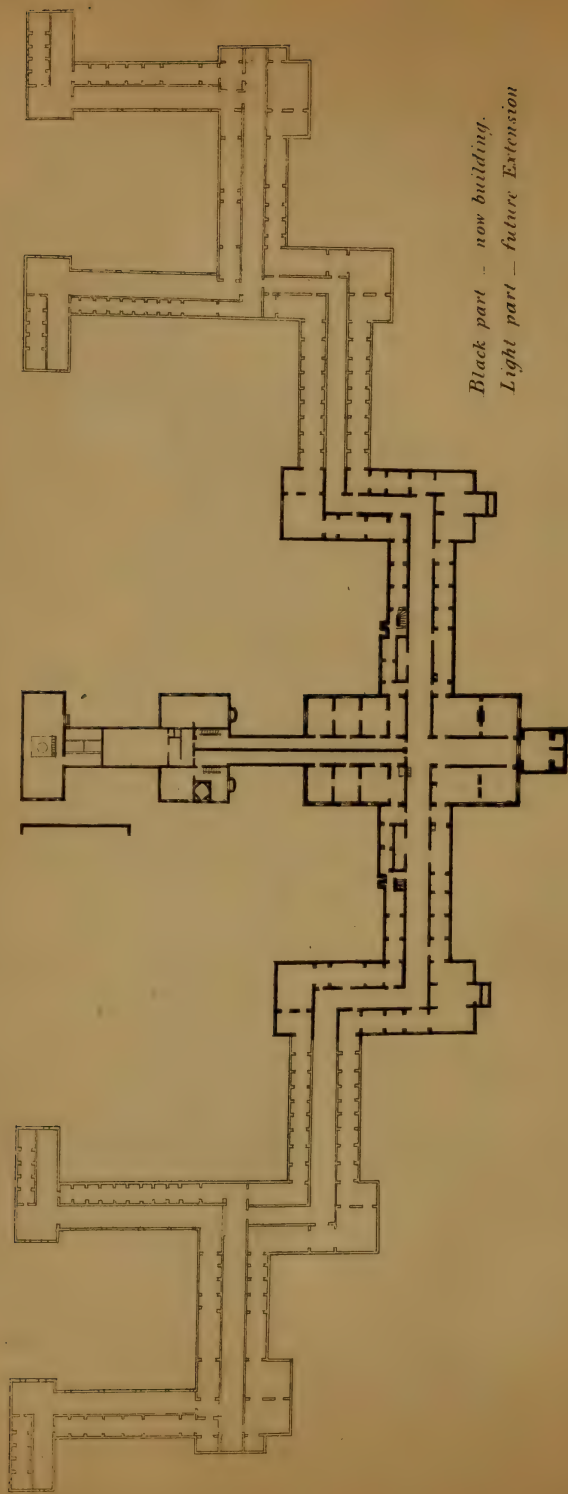
FRONT ELEVATION OF HOSPITAL, NOW IN COURSE OF ERECTION

AT

MIDDLETOWN, CONN.



PRINCIPAL PLAN OF PART OF HOSPITAL, NOW IN COURSE OF ERECTION.



*Black part -- now building.
Light part -- future Extension*

Length 768 feet.

CELLAR PLAN OF THE HOSPITAL WHEN COMPLETED.

FIRST REPORT
OF THE
BOARD OF TRUSTEES
OF THE
GENERAL STATE HOSPITAL
FOR THE INSANE,
OF THE
STATE OF CONNECTICUT,

Presented to the General Assembly, at its Session in May, 1867.

BY ORDER OF THE GENERAL ASSEMBLY.

NEW HAVEN:
PRINTED BY THOMAS J. STAFFORD.
1867.

REPORT.

To the Honorable, the General Assembly of the State of Connecticut:

THE Board of Trustees of "The General Hospital for the Insane of the State of Connecticut," appointed by your Honorable Body, at their last session at New Haven, respectfully report,

That their first meeting was held in the city of Hartford in July last, His Excellency, the Governor, presiding, and that the important duties confided to them were entered upon with unanimity and zeal. They found a prevailing sentiment that the State of Connecticut was earnest in the determination to make "ample and suitable provision for its Insane"—of which it is computed there are between four hundred and five hundred now needing the protection of the Hospital—and that the Board would be justly held responsible for any needless delay in the accomplishment of this great object;—indeed, the more that was learned of the Insane in visits to various Hospitals, and of the pressing necessity in this State for such a curative institution, and of the remedial benefits to be conferred by it, upon the helpless class afflicted with the terrible malady of Insanity, the more interested and pledged were your Board to provide, at the earliest period, a Hospital, which, in its BUILDINGS, should combine all the improvements for economy, comfort and ventilation, which experience has successfully endorsed, and in the TREATMENT OF PATIENTS, all those excellent methods which modern science and Christian faithfulness in this peculiar work, have developed, in order that the WHOLE, in its working, shall conduce, in the words of the pre-

amble of Act of appointment, to "the public welfare," the glory of "our Holy Religion;"—and, it may be added, to the honor of the State of Connecticut.

Under this sense of responsibility to the benevolent intent of the General Assembly, your Board felt the necessity of informing themselves individually, of the needs in detail, of Institutions for the relief of Insane, and visited personally several Hospitals, thus bringing together many facts, and the experience of well-known Superintendents in other States, of direct value to their object.

After several meetings and discussions, and hearing the claims and liberal propositions of other places, the Board formally and unanimously accepted a tract of land, of about one hundred and fifty acres, which the town of Middletown offered gratuitously to the State for the purposes of the Hospital.

The location is about two miles southeasterly of the city of Middletown;—is healthy, sufficiently elevated, easy of access by land and water; (the depth of water of the river, at end of dock, is twelve to sixteen feet;) commanding extended views of a beautiful region,—and what is of special mark, includes the absolute control of a small stream called "Butler's Creek,"—giving, by the estimates of Engineers, an abundant water-head of seventy feet above the foundation of the proposed buildings, with a power adequate to all the uses of water within the walls, and sufficient for all mechanical and ornamental appliances, in shops and on the grounds, which it may be convenient or proper to establish.

In selecting the special site for the foundations of the buildings, it was found that the economical and best interests of the State and of the Institution, required a larger extent of level ground than existed on the land given by Middletown, and a purchase was subsequently made of about eighty acres, connecting directly across a narrow highway, with the westerly line of the former tract.

Upon a plateau of this last named land, excavations were begun for foundations, and a permanent road to the highway constructed, under the direction of Dr. Abraham Marvin Shew, the appointed Superintendent of the Hospital,—who, before entering upon his duties, gave the required bond and securities in accordance with the “act,” and furnished a “plan” for the buildings, which was approved by the Board. The particulars of the plan are given in the annexed report of the Superintendent.

The work on the grounds was interrupted by the cold in December, and resumed about the first of April.

The slackness of the demand for labor and stone, incident to winter, and the fact of a “natural bridge” of ice on the river, were availed of for cheaply hauling to the site several hundreds of tons of sand and stone to be ready for use in the spring; also for the construction of a wharf very near to the site. The town of Middletown has consented to pay nearly all of the cost of the wharf.

A decline in prices of materials during the winter, led to the purchase of two hundred thousand brick, and to the making of favorable contracts, mentioned in another part of this report, for one million brick, five thousand perches of stone, five hundred thousand feet of Georgia pine and other lumber, deliverable early in the spring, to be stacked for seasoning, and for one thousand or more barrels of lime.

A contract also, was made for a dam and appurtenances, with minute specifications for details as to manner and form of construction, flowage of about three and one-half acres, thorough “grubbing,” and for the providing and laying of necessary pipe to convey water to the buildings.

It is confidently expected by the Board, and by competent Engineers who have been consulted, that the new feature to be introduced at this institution, viz. the economical service of water descending by gravity for use in the buildings, and for the motive power of the necessary machinery for ventilation

and other purposes, instead of the costly service of steam, as in every other Hospital of the country, will be of eminent success and of permanent economy, saving thereby not only the cost of erection and repairs of expensive machinery, but hundreds of tons of coal, annually, in fuel.

It will be evident that this use of water obviates the necessity of a steam-engine with skilled attendants, of reservoirs in the upper stories of the buildings, which are often liable to leaks, causing injury to walls and furniture, and also of troublesome forcing pumps. The Board do not believe that they overestimate the advantages of this provision of water. A deficient supply of water, and the difficulties frequently experienced with the machinery which raises it, are subjects of anxiety and complaint in many institutions. From these it may fairly be expected that your Hospital will be free.

The appropriation of the last General Assembly for the supposed necessary expenditure until the next session, was only \$35,000, of the much larger sum which it was well known would be needed for the carrying out of their just and benevolent intentions for this Institution.

To accomplish all that was deemed by your Board indispensable to an early completion of a part of the Hospital, and the early reception of patients, as well as to consult true economy in choosing a favorable time to obtain the materials requisite for the progress of the structure, it was determined unanimously, to make contracts for brick, stone, lime and lumber, with parties of good standing, who, in every case, accepted them "on the condition of waiting the action of the next General Assembly for payment, without interest;" a copy of the vote of the Board to this effect was furnished to each. In thus having on hand materials, especially lumber, which requires time for seasoning, your Board are convinced that the building will be ready for inmates several months, before it could have been, had they waited for the present session, before making arrangements for supplies.

As the contractors have thus so willingly entered upon engagements, relying upon the Faith of the State, it may not be considered other than respectful on the part of the Board, to call the attention of your Honorable Body to the need of early legislation in behalf of the Institution.

In Dr. Shew, the Superintendent, the Board are satisfied that a selection has been made of a competent, energetic, Christian man, devoted to the duties of his position. He is of Connecticut origin, served over two years as Surgeon in the army of the United States, and in treatment of the Insane in Hospitals nearly three years, and had full testimonials for integrity, capacity and experience. His experience, too, derived from aiding in the erection of extensive additions to the New Jersey State Hospital for the Insane, (for which the Legislature lately appropriated \$100,000,) made during the past year at Trenton, has been found of much value. Dr. Buttolph, Superintendent of the New Jersey Institution, who, from character and the experience of many years, is an acknowledged authority in such matters, recommended Dr. Shew in the highest terms for the direction of your Hospital. It is due to Dr. Buttolph, and it gives us pleasure to mention it, that he voluntarily came from Trenton to visit the site at Middletown, and gave the Board important suggestions as to plans and the positions of buildings.

The Board are greatly indebted to Miss Dix for her disinterested advice and labors, and for attendance, as requested, at several of the earlier meetings, and for the continued interest she has manifested in the progress of the Hospital, with which her efforts in this State will be identified, as they justly are with similar institutions in so many of the other States of the Union.

The report of the Superintendent and Treasurer is herewith enclosed.

In conclusion, the Board of Trustees respectfully request,

First,—An appropriation of \$100,000 for the needful expenditures of 1867-8.

By early action of the General Assembly, it is believed that the center building and two wings, over three hundred feet in length, to contain two hundred patients, may be opened during next year. The report of the Superintendent is referred to for the dimensions of the buildings, information as to plans, and reasons for work already in progress.

Second,—The passing of a bill to regulate admissions of patients.

A draft of a bill for admissions, under such regulations and formalities as have been found of practical value in other States, and which Section 4, of the act, makes it the duty of Trustees to provide, will be presented early in the session.

Third,—An amendment of that paragraph of Section 2, of the Hospital Bill, June 29th, 1866, which reads:

“And the places of the two senior members, as they stand in the order, shall be annually vacated,”

by the addition of the following words:

“But this clause shall not take effect in the case of the two senior members first appointed, until one year after the completion of the Hospital and its being opened for patients.”

It is a very strong conviction on the part of the Board, that it would be detrimental to the interests of the State, and of the Institution now begun, to dispense with the services of the “two senior members.” The Trustees have spent much time and effort to fit themselves for the work in hand, and any change of the existing harmonious combination, before the building is occupied and yielding practical benefits, cannot but cause delay, as it would require much time for new members to acquaint themselves with the necessary details.

Fourth,—A repeal of those paragraphs of Section 4, which unite the duties of Treasurer and Superintendent, beginning, “He shall be Treasurer,” * * * and ending, “property received by him as Superintendent.”

The Trustees are of opinion that the detailed labors of Treasurer, with care of funds, accounts and vouchers, can best be performed at small expense, by some person not connected with the Hospital, and who shall reside in the city of Middletown. The separation of the two offices is recommended, and is the practice in other States. It is supposed that Section 3, defining “duties of Trustees,” will, after repeal of above paragraphs, be adequate to the appointment of a Treasurer.

Fifth,—To amend Section 3, by the addition of the words, “And they shall have power to receive bequests of property, real or personal, and donations of any description, for the uses of the Hospital.”

Your Trustees, in submitting this statement of their doings to your Honorable Body for its sanction, believe they may congratulate the citizens of the State of Connecticut, on the promising inception and expected early completion of this benevolent institution.

All of which is respectfully submitted.

JOS. R. HAWLEY,	<i>Hartford.</i>
H. SIDNEY HAYDEN,	<i>Hartford County.</i>
LEVERETT E. PEASE,	<i>Tolland “</i>
S. G. WILLARD,	<i>Windham “</i>
B. W. TOMPKINS,	<i>New London “</i>
WM. B. CASEY,	<i>Middlesex “</i>
R. S. FELLOWES,	<i>New Haven “</i>
CURTISS T. WOODRUFF,	<i>Fairfield “</i>
ROBBINS BATTELL,	<i>Litchfield “</i>

MIDDLETOWN, April, 1867.



REPORT OF THE SUPERINTENDENT

TO THE

Board of Trustees of the General Hospital for the Insane,

OF THE

STATE OF CONNECTICUT.

GENTLEMEN :

After receiving in October your appointment as Superintendent, and furnishing the necessary bond, I entered upon the duties of the office, and, as required in the act, "procured the plans of a suitable building" for your proposed Institution.

As Messrs. Sloan and Hutton of Philadelphia, are generally acknowledged to be the architects most experienced in providing plans for Hospitals, I applied to them for the drawings, and spent several days in their office in consultation and explanation of your wants, in which I had the very valuable assistance of one of the oldest Superintendents in the Speciality in the United States. The elevation and plans as worked up, met your unanimous approval.

The whole length of the buildings, when completed, is intended to be seven hundred and sixty-eight (768) feet, with accommodations for at least four hundred and fifty (450) patients.

The central building will be sixty (60) feet in width, by one hundred and twenty (120) feet in depth, four stories in height,

and will contain the necessary offices, kitchen, dispensary, patients' reception rooms, apartments for officers and employés, chapel and amusement hall.

There will be, also, six retreating wings, three on each side, of three stories in height ; and four return wings, two on each side, of two stories in height.

It is proposed this year to proceed only with the erection of the central building and one wing, with its connecting transept on each side of the centre, of one hundred and twenty-four (124) feet each, making a frontage of three hundred and eight (308) feet, with accommodations for at least two hundred (200) patients.

The commencement of the Hospital buildings with the central building and adjoining wings, was determined by motives of economy, as will be evident when it is considered that in the central building are to be placed the rooms for the assistants and personnel of the institution ; and of the kitchen and store-rooms, which thus will be permanent, supplying by tram-ways in the cellar, food and necessities to all the wings and stories of the Hospital as they shall be built. If this plan had not been adopted, temporary kitchens and offices would have been required, and, to some extent, double expense and removals made necessary. Time and expense will, by the plan adopted, be largely saved.

All the buildings are to be constructed of Portland Free Stone, laid in broken range-work, with hammer dressed stone for corners, water-tables, window-sills and caps.

You are aware of the completion of the dock, and of the giving out of contracts under your direction, for lumber, lime, brick, stone, sand, etc. Of sand, about six hundred tons have been hauled over the ice ; also, about fifteen hundred tons of wall stone. With your sanction, I have employed a foreman, head mason and head carpenter, and we are fully prepared to resume work.

It should be remembered that the five months since my connection with your Board, have included the winter months, and, of course, the most unfavorable of the year for out-door work.

During the month of December we completed a macadamized road, at uniform grade, from the main highway to the building site, and were engaged in making the necessary excavations for cellars, when the cold weather interrupted the work ; but the plans are matured and the means for progress in such preparation, that I have no doubt that within a short time, very satisfactory advance may be shown.

The varied matters connected with the duties of a Superintendent, especially during the period of the erection of the Hospital, induce me to suggest that the keeping of accounts in detail, with accuracy, and with vouchers as required by the law creating the office of Treasurer of the institution, might advantageously be separated from the complicated duties of oversight of the building.

The important contract for the dam, and for the introduction of the water of Butler's Creek to the immediate premises of the Hospital grounds, has been made with Mr. George H. Norman, and includes almost every possible contingency for its perfect completion ; grubbing, mauling, stone work, pipe and pipe connections, with necessary blow-offs, etc.

My report, as Treasurer, audited by your Committee, is herewith enclosed.

The proposed bill for admission of patients, will be prepared to be presented to the General Assembly for its sanction. It requires time and consultation to have it meet the requirements of the laws of the State.

It is due to the people of Middletown, that I should allude to the deep interest they have constantly manifested in all matters relating to the progress of the Institution.

In closing this imperfect report of a short period, I would express my gratitude to the Board for their uniform confidence, and encouragement in the important trust committed to my charge.

Respectfully submitted,

ABM. MARVIN SHEW, *Superintendent.*

MIDDLETOWN, CONN., April 1st, 1867.

Dr. A. M. SHEW, Treasurer, General Hospital for the Insane, in Account with the State of Connecticut. Cr.

To Cash received of the Treasurer State of Connecticut, .. \$25,000.00

By Superintendent's Salary, 5 14-31 months,	\$908.58
" Pay of Employees,	3,027.16
" Furniture and fixtures,	306.54
" Fuel and lights,	20.30
" Stationary and Postage,	193.78
" Farm, purchase of site,	15,510.00

MISCELLANEOUS.

" Trustee's expenses,	\$323.83
" * Timber, lumber, &c., (dock),	637.99
" Superintendent's expense account,	70.29
" Superintendent's board,	134.84
" Drawing sand,	465.66
" " stone,	1251.37
" Brick and sand,	1029.30
" Stage poles,	141.25
" Hay,	44.25
" Sewer Pipe,	129.38
" Transportation,	40.46
" Barrows and rope,	72.15
" Lumber,	61.00
" Horse and teams,	56.50
" Sundries,	372.40
Balance on hand,	4,830.67
	202.97

\$25,000.00

\$25,000.00

* Will probably be refunded.

Middletown, April 1st, 1867.

I hereby certify that I have examined the vouchers and accounts of the Superintendent, of which the above is an abstract, and found them correct.

Middletown, April 5, 1867.

R. S. FELLOWS, Auditor.

REPORT
OF
COMMITTEE
ON
INCURABLE INSANE,

APPOINTED MAY SESSION, 1865.

Printed by order of the Legislature.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS.
1867.

REPORT.

GENERAL ASSEMBLY, }
May Session, 1866. }

The Joint Select Committee, appointed at the May Session of the General Assembly, A. D. 1865, "to inquire into the expediency and practicability of providing an Asylum separate from the Retreat in Hartford, and suited to the condition of the insane, whether residing at said Retreat or elsewhere in this State, with leave to sit during the recess, and report to the next session of the General Assembly, respectfully ask leave to

R E P O R T :

That after the adjournment of the General Assembly at which they were appointed, they issued circulars of inquiry which were sent to the selectmen of each and every of the towns of this State, replies to which were in due time received, and the same are herewith presented to be filed with this Report, for reference, should such reference be desired.

From these replies the committee present the following summary, which they believe is substantially correct:

On the 1st day of April, A. D. 1866, there were in the Retreat at Hartford, receiving aid from the State appropriations, one hundred and forty-seven persons (147.)

In the Retreat, from Connecticut, supported as private patients, there were fifty-five (55.)

There were in the Poor-houses or otherwise, wholly or in part supported by the towns, (as per returns of committee's circular,) two hundred and four persons (204.)

It is estimated by Dr. Butler and others well acquainted

with the subject, (although the committee are not [in] possession of the facts which establish the soundness of that opinion,) that there are in the State, besides those above enumerated, outside of the Retreat and Poor-houses, as many as three hundred insane persons (\$300.)

Upon recapitulation the number stands thus :

In Retreat, with State aid,	-	-	-	147
In Retreat, without aid,	-	-	-	55
In Towns, supported or aided,	-	-	-	204
All others,	-	-	-	300

Whole number of insane in the State, 706

The whole number of patients in the Retreat at Hartford, on the 1st of April, A. D. 1866, were two hundred and forty-five (245.) Even this number crowds the wards, or halls, of that institution to such an extent that the comfort of the patients is disturbed, and their recovery delayed.

For several years since 1859, the superintendent of the Retreat has represented the institution as being crowded, and has deplored the necessity which compelled him to refuse numerous applications, and to send away chronic, to make room for recent, cases of insanity.

The committee are aware that the Joint Resolution under which they were appointed, contemplates provision only for those denominated "Incurably Insane," but while it is undeniable that cases of incurable insanity are found, it is not assumed by the committee that all chronic cases are incurable.

The committee believe that the confinement of a large number of persons together in close rooms, or in inclosures shut out from the beauties of the natural world in the more genial seasons of our climate, without employment of any kind, is calculated rather to intensify and increase any morbid tendency, than to restore in such afflicted persons the normal condition of the faculties.

A change of air, of scene, and occupation, is always prescribed by the intelligent physician for persons giving earliest evidence of morbid mental action ; and it is reasonably pre-

sumed that if necessary in the first approach of derangement, it must be equally essential in the treatment of chronic insanity, and during all the period of restoration.

In the opinion of the committee, healthful and cheerful employment out of doors during the seasons when such occupations are appropriate, and pleasant labor in well-ordered and well-ventilated apartments during the colder portions of the year, would do much toward giving to the class of insane persons who are the subject of this inquiry, that relief which all treatment is intended to secure for them.

While pursuing this inquiry, the committee have become satisfied that there is actual necessity for some Legislative action which shall embrace in its scope the wants of our State, in providing not only for the indigent and chronic insane, but also for such persons now happily situated, who, having abundant pecuniary means, are not able to receive within the limits of the State, an asylum within whose walls they may find the restorative treatment which they require.

The advancing civilization of our times in its culture and development of all humane enterprises, demands that Connecticut should take a step forward in her provision for all classes of unfortunate persons within her borders who need either restoration or reform.

It is certain that our beloved State, behind no other in patriotic devotion to the good of the whole country, is yet behind several of her sister States in her provision and appropriations for classes of her own citizens who are entitled to the sympathy and generous aid of all who are so highly favored as to escape the maladies and disabilities under which they languish and so miserably suffer.

With a population rapidly increasing in numbers, in wealth, and so devoted to acquisition in all the departments of industry, it must soon inevitably occur that the present temporary arrangement with a private and limited institution, already wholly inadequate to meet the wants of the State, will become altogether insufficient to provide for them.

A wise forecast, prompted by humane and charitable mo-

tives worthy of our citizens, and especially of our Legislators, would indicate the soundness of a policy which should make immediate and generous provision for the wants of the insane of our State of all classes, in the erection of an Institution upon the most improved plans, to be owned and controlled by the State, and to constitute one of the sources of its greatest honor and most grateful mention.

Of the expediency and practicability of this course, the committee have no doubt.

All which is respectfully submitted.

SYLVESTER SMITH,
JOHN S. RICE,
F. J. KINGSBURY,
H. B. MUNSON.

THE

FORTY-THIRD ANNUAL REPORT .

OF THE .

Officers of the Retreat for the Insane,

AT

HARTFORD, CONN.,

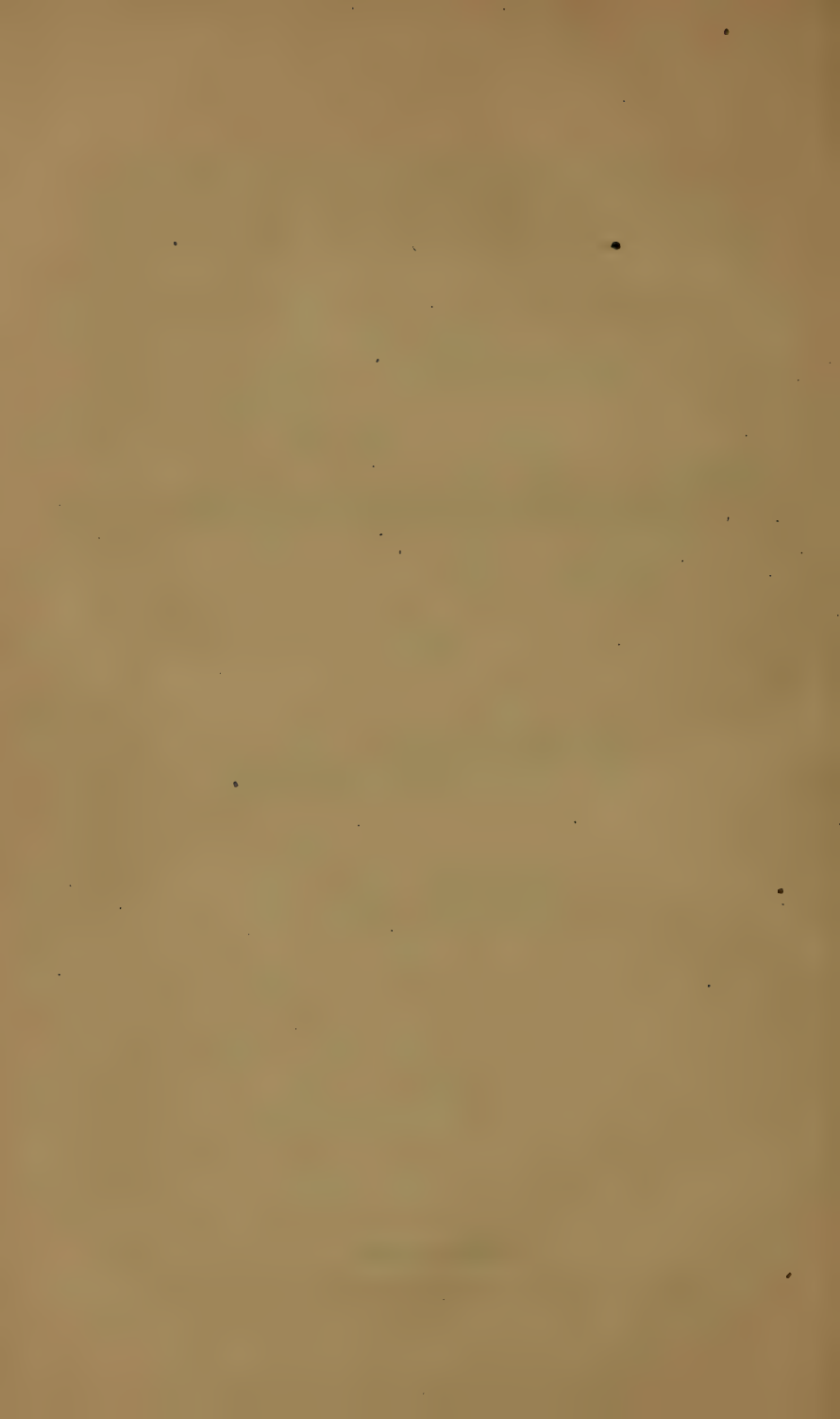
APRIL, 1867.



HARTFORD:

CASE, LOCKWOOD AND COMPANY, PRINTERS.

1867.



OFFICERS
OF THE
RETREAT FOR THE INSANE,
FOR 1867.

HON. WILLIAM W. ELLSWORTH, *President.*
HON. WILLIAM A. BUCKINGHAM, *Vice President.*
THOMAS SISSON, *Treasurer.*
THOMAS BELKNAP, *Auditor.*
JONATHAN B. BUNCE, *Secretary.*

DIRECTORS FOR LIFE BY ORIGINAL SUBSCRIPTION OF \$100.

ROBERT WATKINSON, WILLIAM W. ELLSWORTH.

DIRECTORS CHOSEN AT THE ANNUAL MEETING.

WILLIAM T. LEE,	E. K. HUNT,
ALFRED SMITH,	OLCOTT ALLEN,
JOHN S. BUTLER,	JAMES L. HOWARD,
EZRA CLARK,	WILLIAM R. CONE,
THOMAS BELKNAP,	THOMAS SMITH,
CALVIN DAY,	GEORGE P. BISSELL,
CHARLES GOODWIN,	MARK HOWARD,
HORATIO E. DAY,	E. G. HOWE,
SAMUEL S. WARD,	J. B. BUNCE,
GURDON W. RUSSELL,	G. M. BARTHOLOMEW.

MANAGERS.

SAMUEL S. WARD, 23 High Street.
WILLIAM R. CONE, 2 Central Row.
CALVIN DAY, 73 Asylum Street.

JOHN S. BUTLER, M. D., *Physician and Superintendent.*
WILLIAM PORTER, M. D., *Assistant Physician.*
REV. S. SPRING, *Chaplain.*
EDWARD E. PORTER, M. D., } *Apothecaries.*
F. M. HAMLYN, }
MR. THOMAS H. HOLADAY, *Steward.*
MRS. THOMAS H. HOLADAY, *Matron.*
MRS. CLARISSA COOLIDGE, *Assistant Matron.*

VISITING COMMITTEES.

DIRECTORS.

1867.	June,	Messrs.	WATKINSON, BELKNAP, C. DAY, GOODWIN.
	July,	"	H. E. DAY, RUSSELL, HUNT.
	Aug.,	"	ALLEN, BUNCE, J. L. HOWARD.
	Sept.,	"	CONE, T. SMITH, BISSELL.
	Oct.,	"	M. HOWARD, HOWE, BARTHOLOMEW.
	Nov.,	"	ELLSWORTH, LEE, A. SMITH, CLARK,
	Dec.,	"	WATKINSON, BELKNAP, C. DAY, GOODWIN,
1868.	Jan.,	"	H. E. DAY, RUSSELL, HUNT.
	Feb.,	"	ALLEN, BUNCE, J. L. HOWARD,
	March,	"	CONE, T. SMITH, BISSELL.
	April,	"	M. HOWARD, HOWE, BARTHOLOMEW.
	May,	"	ELLSWORTH, LEE, A. SMITH, CLARK,

MEDICAL VISITORS.

N. B. IVES, M. D.,	P. M. HASTINGS, M. D.,
E. K. HUNT, M. D.,	ISAAC G. PORTER, M. D.,
GURDON W. RUSSELL, M. D.,	HENRY M. KNIGHT, M. D.,

VISITING COMMITTEE OF LADIES.

MRS. W. R. CONE,
 MRS. CALVIN DAY,
 MRS. THOMAS SMITH,
 MRS. P. M. HASTINGS.

REPORT OF THE MANAGERS,

TO THE BOARD OF DIRECTORS OF THE RETREAT FOR THE INSANE.

The Committee of Management of the Retreat for the Insane, in the annual report which we now submit, feel ourselves only called upon to state briefly, that the Institution has been carried forward as usual, fulfilling, as we think, in a good degree, the design of its benevolent founders.

The monthly accounts of the steward have been regularly and carefully examined, with the vouchers, and found correct and satisfactory, and all the duties of his department have been performed in a manner worthy of commendation.

The report of the Superintendent and Physician, and also of the Chaplain, are referred to for information, under their respective heads. The Treasurer's account shows a small excess of receipts over expenditures, which it is gratifying to be able to report, as it was feared that a different result might have been reached. In behalf of the Managers,

S. S. WARD, *Chairman.*

REPORT OF BOARD OF MEDICAL VISITORS.

Agreeably to custom, the undersigned respectfully reports :

That the members of this Board have continued their visits at the Retreat, monthly, by sub-committees, and quarterly, as a Board, during the past year.

The medical treatment of the patients, and especially the hygiene of the Institution, have received more than usual attention. The approach of cholera in the spring of 1866, and the apprehension of a wide-spread and desolating epidemic, rendered it highly desirable that all public institutions should be placed and maintained in a condition best calculated to prevent the outbreak of this mysterious scourge, and to render its stay as brief and as little injurious as possible, should preventive measures fail.

In view of a contingency so imminent and fearful, it gives the Board peculiar satisfaction to report, that this Institution not only escaped the dreaded malady, but that the health of the interesting household of invalids assembled here, has been quite as good as usual throughout the year, and the means employed for their comfort and restoration highly successful.

At our visits, it has been a practice to hold brief conversations with many of the inmates, and also to notice the general aspect of the patients ; whether free, or not, from the nervous excitability and restlessness which characterize, to a greater or less degree, those who, in institutions of this class, suffer from a want of proper care for their manifold wants and infirmities.

We have observed little of the latter, while, on various occasions, expressions of gratitude for the kindness received and the efforts made by those in charge to render their stay agreeable as well as useful, have been spontaneously offered by patients.

The courts or airing-grounds, recently enlarged, have been of the greatest service to the inmates, and the occasion, we believe, in no small degree, of the increased health and comparative enjoyment which it has been our pleasure to observe.

On the whole, with its existing accommodations and management, and beautiful surroundings, few institutions afford equal advantages for the proper treatment of the distressing malady which this was founded to relieve, and whose mission it has thus far so well fulfilled.

In behalf of the Board,

E. K. HUNT, *Secretary.*

HARTFORD, *April 1, 1867.*

TREASURER'S ACCOUNT.

DR. RETREAT FOR THE INSANE, *in account with* THOMAS SISSON, *Treasurer.* CR.

1867.		1867.		
March 31st,	To Balance from old account, 1866, -	\$637.80	March 31st,	By Cash received for support of Patients, \$72,329.14
"	To Cash paid order S. S. Ward, Esq.,		"	By Cash received for articles sold, - 467.62
"	Chairman Board of Managers, -	69,550.15	"	By Cash received from Interest and Div-
"	To Cash paid for Insurance and Stamps,	391.00	"	idends, - - - 1,046.88
"	To Cash paid for publishing Reports,	254.25	"	By Cash received for Rent of Land, 100.00
"	To Cash paid for Visiting Committee,	60.00		
"	To Cash paid for Library, -	30.95		
"	To Cash paid for Government Bond,	200.00		
"	To Balance to new account, - -	2,819.49		
		\$73,943.64	1867.	
			April 1st,	By Balance from old account, -
				\$73,943.64
				\$2,819.49

Examined and found correct,

Hartford, April 1st, 1867.

T. BELKNAP, Auditor.

THOMAS SISSON, Treasurer.

HARTFORD, April 6, 1867.

SUMMARY OF EXPENSES,

For the year ending March 31st, 1867.

Stores,	-	-	-	-	-	\$24,818.42
Salaries and Wages,	-	-	-	-	-	18,410.84
Repairs and Improvements,	-	-	-	-	-	5,040.62
Furniture,	-	-	-	-	-	4,114.87
Fuel,	-	-	-	-	-	4,935.02
Medicines,	-	-	-	-	-	3,011.25
Lights,	-	-	-	-	-	835.46
Feed for Stock,	-	-	-	-	-	1,149.53
Books, Printing and Stationery,	-	-	-	-	-	860.47
Insurance,	-	-	-	-	-	386.00
Amusements,	-	-	-	-	-	100.00
Stock, Tools, &c.,	-	-	-	-	-	121.56
Miscellaneous,	-	-	-	-	-	186.84
Total,	-	-	-	-	-	<hr/> \$63,970.88

Average weekly cost of each patient, \$5.16.



THE
FORTY-THIRD ANNUAL REPORT
OF THE
Superintendent and Physician
OF THE
RETREAT FOR THE INSANE,
FOR THE YEAR ENDING MARCH 31st, 1867.

To the Directors of the Retreat for the Insane :

GENTLEMEN :—I respectfully submit for your consideration,
the Forty-Third Annual Report of this Institution :

	Males.	Females	Total.
The whole number of patients in the Retreat at the beginning of the year, was - - - -	125	120	245
Admitted during the year, - - - -	67	115	182
Total number in the course of the year, - -	192	235	427
Of this number there have been discharged,			
Recovered, - - - - -	29	61	90
Much improved, - - - - -	11	17	28
Improved, - - - - -	10	9	19
Not improved, - - - - -	10	11	21
Died, - - - - -	15	14	29
Total discharged during the year, - -	75	112	187
Remaining in the Retreat, April 1st, 1867, - -	117	123	240
Whole number admitted up to April 1st, 1867, -	2,182	2,543	4,725
Whole number discharged during same period, -	2,065	2,420	4,485
Whole number remaining, - - - -			240

The preceding tables present a brief summary of the results of the year. They show that the whole number of admissions, discharges, recoveries, the least number on any day, and the daily average for the year, have been larger than at any preceding time.

The year commenced with 245 patients. There were 182 admitted, and 187 discharged, leaving 240 at the close of the year. The whole number under treatment being 427, a larger number by 24 than has been treated during any previous year.

Of the 187 patients discharged, 90 had recovered, 47 were more or less improved, 21 were not improved, and 29 died.

Of the deaths, 15 were males, and 14 females. Of these, 5 were from exhaustion of acute mania; 9 from simple exhaustion; 4 from epilepsy; 2 from consumption; 2 from diarrhœa; 2 from old age; 2 from paralysis; and one each from abscess, suicide, and disease of the heart.

The greatest number of patients in the institution on any day, was 246; the least number, 230; while the daily average for the year, was 238. The whole number of patients admitted into the Retreat since its opening, in 1824, is 4,725; of the 4,485 who have been discharged during the same period, 2,212 have recovered, and 524 died.

In addition to the ninety recoveries, a number of those reported "as much improved," were restored to entire health soon after leaving us, and many discharged as "improved," were found so much better, as to be easily cared for at home. It is fair to include such cases in the measure of the benefits which the Institution has conferred upon its inmates. When we add to these, the cases of the many who have found here a safe retreat from excitement and annoyance, or a quiet refuge and resting place, we may well congratulate the friends of the Retreat upon the results of the year, and find abounding cause of grateful thanksgiving to our Father in Heaven, "whose loving kindness is over all His works."

I have alluded, in my previous reports, to the injury which has resulted, not only to the general operations of the Retreat, but to its pecuniary interest, from the crowded state of the

wards. This has in no way diminished during the past year. It will be seen elsewhere that the capacity of the Retreat has been entirely disproportionate to the demands made upon it for the reception of cases.

The pressure for admission, especially for such cases of the indigent class as could not be safely kept in almshouses, has been so great as often to compel us to discharge those who are more quiet, and less troublesome and dangerous ; receiving in their stead, with greater care and anxiety to ourselves, and with no greater profit to the Institution, those who were dangerous to themselves or others.

Moreover, in thus receiving this troublesome class of State patients, and very generally at our lowest rate of board, we have often been compelled by want of room to refuse the applications for admission of patients from other States, ready to pay us a much higher price. Thus, while on the one hand our income was reduced, on the other, the prevalent impression that the Retreat was in reception of large annual grants of money from the State, prevented us from receiving that aid from donations and legacies from the benevolent which other Institutions like ours receive, and which we might reasonably have expected.

Thus, as I remarked in a previous Report, the Retreat has been suffered to go on almost single handed and alone, in its great work of an elevated and self-rewarding benevolence, making many rich in health and happiness, endowing many a happy home with that wealth which is the "crown of the wise," yet all the while struggling with narrow means, and contending in the race of usefulness and excellence with other institutions, which have been more liberally sustained, either from the treasuries of their respective States or by private beneficence.

As I stated in my last Report, the whole number of lunatics in the State cannot be less than 700. Of these, only 200 are in the Retreat. The Report of the Committee to the last Legislature showed that two hundred and one were in the almshouses of the State, leaving three hundred as the resi-

dents of private families. The proper capacity of the Retreat is limited to two hundred and ten. Its actual number of residents ought never to exceed it. About five hundred, therefore, of the seven hundred must look beyond the State for relief, or remain in private families or the almshouse. Against this latter resort I am bound to record my testimony. I adopt most fully and cordially the protest of the Superintendents of the New York almshouses against the admission of the pauper insane to such institutions any where and under any circumstances. In my opinion no lunatic should ever be the inmate of an almshouse; its whole economy and arrangement render it very difficult, if not impossible, to provide for the suitable care and treatment of the insane therein. With some exceptions, perhaps, in our better organized almshouses, the insane man becomes inevitably the sport, the victim, or the drudge of the other paupers.

Thorough investigation into the condition of almshouses in other States has shown us that the female pauper lunatics fare far worse. It would be, therefore, in my view, a great advance in the humane treatment of this afflicted class, if all lunatics were excluded from almshouses by law.

With seven hundred lunatics in the State, of whom two hundred only are in the Retreat, and with an average of one hundred and fifty of these and the two hundred and one in the almshouses at public charge, and no provision for the succor and treatment of the remaining three hundred, it was very evident that a grave duty was placed upon the State.

I congratulate the State upon its decision to discharge this duty to these, its suffering children, by the immediate erection of a State Lunatic Hospital. This was demanded by the urgent necessities of the large class of indigent insane who look to the State for succor, as well as by many whose narrow means compel them to seek relief from disease at a rate of charge lower than can be afforded consistently with sustaining the necessary income of the Retreat.

The architectural arrangements of the Retreat, its wards constructed for small and select classes of patients, compelling necessarily, a larger proportion of attendants and of expen

diture, render it unable to compare in lowness of rates with State Hospitals, where larger wards admit of a less number of attendants and a diminished expense. To this may also be added, in aid of the greater economy of the administration of a State Hospital, that a much larger proportionate amount of labor, both in the in-door as well as the out-door work of the Hospital, can be not only reasonably claimed, but obtained from the patients.

The erection of the new State Hospital, and the abundant provision which must then be made for the indigent insane, will necessarily terminate, at an early period, the relation which has for some twenty-five years existed between this Institution and the State. It will also constitute a new era in the life of the Retreat, freeing it from its embarrassments, which are becoming more and more serious, and enabling your Board to carry out those improvements and make those advances which, for some years past, have been rendered impossible by the crowded state of the house.

It may be well here to review briefly the history of this relation between the State and the Retreat, especially as, notwithstanding the explanations that have been made from time to time, the most singular misapprehensions continue, to a considerable extent, to exist in regard to it. I cannot do this better, perhaps, than by repeating, briefly, the statements made in our 35th Report.

The Retreat is not a joint stock institution, as many suppose, but a charity. It originated in the laudable and disinterested zeal of individuals, prompted by the representations, and aided most efficiently by the efforts of some of the leading physicians of the State, who found it impossible to carry out suitable methods of treatment for their insane patients in private dwellings. It is controlled by an association of gentlemen, without distinction of party or sect, called the "Society for the Relief of the Insane." The title of the Society designates its sole and exclusive object. These gentlemen have no pecuniary interest in the Institution, and derive no pecuniary benefit from it in any way. The Society meets annually, by public notice, receives the report of the Treasurer, who presents the pecuniary condition of its affairs; and appoints,

by ballot, a Board of Directors and the executive officers. To this Board the general management of the Institution is confided, and, at their annual meeting, they elect the managing and resident officers of the Institution, and direct the general affairs of the Institution.

The excess of income over expenditures, if any, is invested, generally, in such improvements as are demanded by the exigencies of the Institution, or go to the reserve fund, which now amounts to less than \$25,000, the sole profit, besides improvements of the Retreat, for the past forty-three years!

The expenditure of this amount, and much more beside, is now imperiously demanded by the necessary repairs and improvements of the buildings.

I may also add that the whole amount paid to any of the non resident officers of the Retreat, Director or Manager, to the Treasurer, for the management and disbursements of the funds, for travelling expenses of medical visitors, and for any and all expenses outside of the Institution, is only \$160 during the year.

An act of incorporation and a grant of \$5,000 was obtained from the State in 1822, together with a brief, permitting contributions in the churches for five years—(from this last source nothing was ever obtained.) Donations of over \$18,000 were, at the same time, received from private individuals. Some years afterwards, a lottery was also granted by the State.

In 1845, a movement was made by the State to provide for its indigent insane. The Directors of the Retreat then came forward and voted to expend a reserved fund of \$35,000, which they had carefully accumulated, in the erection and furnishing of new buildings, provided the State would, on its part, make suitable appropriations for the support of this unfortunate class at the Retreat.

This sum being found insufficient to finish and furnish the 100 additional rooms which the new buildings contained, the State made a donation of \$5,000 for that purpose. In 1853, the State made a grant of \$8,000, and, in 1855, another grant

of \$6,000, to aid in the erection of new and improved buildings, to take the place of the old and dilapidated lodges. The whole expense of these two buildings was over \$22,000. Of this, the State gave, in two grants, as above mentioned, the amount of \$14,000; the balance of \$8,000 was provided by the Institution, absorbing, as it did, almost the whole of its reserved funds. The whole amount, therefore, which the Institution has ever received from the State is only \$24,000; while the Retreat, at the same time and for the same purposes, has made specific expenditures amounting to \$43,000.

Since 1855, (twelve years ago,) the Retreat has not received a dollar from the State. In 1842, the State made an appropriation of \$2,000 a year, to be expended in part payment of the board of indigent patients at the Retreat. This appropriation has been increased from time to time, as the necessities of the State have demanded, and the capacity of the Retreat would admit. This sum passes into the hands of the Executive of the State as Commissioner of the fund. He dispenses it on application, at his discretion, according to the need of each, the Institution receiving the Governor's order on the Treasury from the friends of its inmates, as so much cash towards the payment of board of such patients, and for no other purpose. The "Fund," therefore, is a simple charity from the State to the indigent insane of the State. It thus enables the Institution to extend its sphere of usefulness, by enabling this class of insane to pay their board therein. Not a dollar of this annual appropriation has ever reached the Treasury of this Institution in any other way, or for any other purpose. No distinction whatever is made in the Institution between patients whose board is thus paid from the Treasury of the State and those patients who pay us the same rate of board from their own or other means.

In order that we may measure more accurately the wisdom and good economy of this arrangement with the Retreat on the part of the State, let us look for a moment at some of the lunatic hospitals around us, which were built and are sustained by their respective States. I select those whose arrangement and position are such that they present the fairest comparison.

The neighboring State of Massachusetts has three State Lunatic Asylums; one in Worcester, erected in 1835; one in Taunton, erected in 1845; and one in North Hampton, erected in 1860. These three hospitals contain accommodations for about nine hundred patients, and have been built at an expense of about \$900,000. The ordinary price of board at these institutions is \$3.50 per week.

The New York State Hospital at Utica, erected in 1842, contains about 600 patients. The cost of its erection and furnishing, with the addition of the amount expended for the reconstruction of parts of the building destroyed by fire, was between seven and eight hundred thousand dollars. The ordinary charge for board at this institution is \$4.00 per week.

In these, as in all other institutions, the State is of course liable for any deficiencies of income, accidental expenses, and all other pecuniary contingencies. In other States besides those just mentioned, the State Lunatic Hospitals are constructed upon the same, or even more liberal foundations. The States erect and furnish the hospitals, pay the salaries of the principal officers, make repairs and improvements, provide funds for deficiencies and contingent expenses, and, in many instances, as will be seen by their reports, make large annual appropriations for these and other special purposes. After all this provision for such essential expenses, a regular charge is made in addition, for the board of each patient to individuals, towns or counties, as the case may be, in different States.

In marked contrast with these, were the arrangements made with the Retreat by Connecticut for the care of its indigent insane. This Institution, in addition to the buildings, grounds and organization previously existing, expended as I have shown \$43,000 of its own funds, in the erection and furnishing of additional accommodations; moreover, it has paid its officers, has made repairs and improvements, sometimes *costly* and *extensive*, has assumed and met all responsibilities for contingent expenses and deficiencies, &c., and has given its indigent class in common and equally with others paying a higher price, the advantages of a large pro-

portion of attendants and other increased appliances of treatment, and has received from the State of Connecticut in forty-three years only \$24,000. In other words, the Retreat has furnished to this class medical attendance, medicine, board, washing and mending: attendants averaging one nurse to seven or eight patients, has heated and ventilated the apartments, employed a chaplain, furnished large libraries, carriages and horses, ornamental grounds for recreation, rooms for entertainments and various amusements, decorated the halls with engravings, and all at a rate of board the lowest charge of which was from 1844 to 1849 inclusive \$2 50 per week, from 1850 to 1863 inclusive \$3 00 per week, with the exception of one year, when it was \$3 50; in 1864, '65, '66 and '67 at \$4 00 per week; a rate of charge that has proved inadequate to cover the actual cost, and which has only been maintained by the excess of our income derived from self-supporting patients paying us a higher price.

The average cost of maintenance for each patient for five years prior to April 1st 1857 was \$3 49 per week: for the year 1865 it was \$4 80 per week, for 1866 \$5 50 per week, and for 1867 \$5 16 per week.

The annual "dividends from the profits of the Institution," about which we are not unfrequently questioned by the uninformed, is only to be measured by the per centage of recoveries; the ninety patients discharged last year being fifty per cent. upon the whole number admitted, (or as it may be termed, "the whole amount invested,") during the year. In this dividend all the employees of the Institution claim an interest as well as the Board, and all like yourselves are eager to swell their share of such profits!

In view of the necessities of the State, of the suffering condition of this large class, the blessing conferred upon hundreds by restoration to health, improvement of condition and protection from suffering by the kindly care afforded those within its walls, the Retreat is well content with the results of the bargain which years ago of its own free will and accord and by its own proposition it made with the State.

This mutual relation is about to cease, for the good of all. Looking back upon its history, I claim for the Retreat that it has done a noble and generous work, and has done it well. It has received the blessings of many ready to perish, the smiles of Divine Providence, and deserves, as I am sure it will receive, the thanks of the State.

TABLE No. II.

MONTHLY ADMISSIONS FROM THE OPENING OF THE RETREAT, APRIL 1ST, 1824.

April,	Males,	176	November,	Males,	174
	Females,	226—402		Females,	196—370
May,	Males,	199	December,	Males,	171
	Females,	252—451		Females,	170—341
June,	Males,	207	January,	Males,	157
	Females,	254—461		Females,	178—335
July,	Males,	216	February,	Males,	162
	Females,	260—476		Females,	153—315
August,	Males,	190	March,	Males,	185
	Females,	223—413		Females,	193—378
September,	Males,	174			
	Females,	230—404	Total,	Males,	2182
October,	Males,	171		Females,	2543—4725
	Females,	208—379			

TABLE No. III.

NUMBER ADMITTED ONCE AND MORE THAN ONCE DURING FORTY-THREE YEARS.

Admissions.	Males.	Females.	Total of Persons.	Total of Cases.
1	1430	1546	2976	2976
2	209	256	465	930
3	46	67	113	339
4	20	27	47	188
5	8	13	21	105
6	6	10	16	96
7		6	6	42
8	1		1	8
9		1	1	9
10	2		2	20
12	1		1	12
Total,	1723	1926	3649	4725

TABLE No. IV.

NUMBER OF THE ATTACK OF THOSE ADMITTED SINCE MARCH 31st, 1845.

NUMBER OF ATTACKS.	1845 to 1855. 10 years.		1855 to 1865. 10 years.		1865 and 1866.		1866 and 1867.		Males.	Females.	Total.
	M.	F.	M.	F.	M.	F.	M.	F.			
First Attack,	355	487	463	527	48	49	51	72	917	1135	2052
Second "	96	148	92	143	7	21	9	20	204	332	536
Third "	27	39	37	51	5	8	1	9	70	107	177
Fourth "	18	23	5	29	3	5	1	4	27	61	88
Fifth "	9	9	7	22		3	2	1	18	35	53
Sixth "	5	6	9	11		1	1		15	18	33
Seventh "	2	5	6	10		1			8	16	24
Eighth "	1	1	4	3				2	5	6	11
Ninth "		2	2	2		1			2	5	7
Tenth "			2	1					2	1	3
Eleventh "			1	1					1	1	2
Twelfth "			1	37					1	37	38
Fifteenth "				24						24	24
Several,	44	42	46	1	6	5	2	5	98	53	151
Unknown,	29	24	36	1		2		2	65	29	94
Total,	586	786	711	863	69	96	67	115	1433	1860	3293

TABLE No. V.

AGE AT THE TIME OF ADMISSION OF THOSE ADMITTED SINCE MARCH 31st 1844.

AGE.	1844 to 1854. 10 years.		1854 to 1864. 10 years.		1864 and 1865.		1865 and 1866.		1866 and 1867.		Males.	Females.	Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
Under 15 years,	5	3	5	5	2						12	8	20
From 15 to 20 y'rs,	48	48	52	43	4	4	3	5	7	4	114	104	218
" 20 to 25 "	84	91	103	132	10	13	7	11	8	18	212	265	477
" 25 to 30 "	63	107	75	131	7	13	14	12	9	12	168	275	443
" 30 to 35 "	87	89	82	118	6	10	8	9	5	17	188	243	431
" 35 to 40 "	57	90	93	103	9	7	12	10	8	17	179	227	406
" 40 to 45 "	69	78	69	100	7	5	3	9	7	17	155	209	364
" 45 to 50 "	45	54	52	73	7	8	3	15	6	10	113	160	273
" 50 to 60 "	59	98	86	103	11	14	9	11	9	12	174	238	412
" 60 to 70 "	33	49	53	53	7	6	5	12	7	6	105	126	231
" 70 to 80 "	11	10	33	16	3	1	5	2	1	1	53	30	83
Over 80 years,	2	3	3	3	1						6	7	13
Unknown,	10	15		2							10	17	27
Total,	573	735	706	882	74	81	69	96	67	115	1489	1909	3398

TABLE No. VI.

DURATION OF DISEASE WHEN ADMITTED OF THOSE ADMITTED SINCE MARCH 31ST, 1844.

DURATION.	1844 to 1854. 10 years.		1854 to 1864. 10 years.		1864 and 1865		1865 and 1866		1866 and 1867		Males.	Females.	Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
Less than 1 month,	120	172	152	212	19	29	14	39	22	32	327	484	811
From 1 to 3 months,	117	149	132	195	10	14	12	19	13	20	284	397	681
“ 3 to 6 “	64	96	108	121	10	7	12	8	5	15	199	247	446
“ 6 to 12 “	53	71	79	81	8	7	11	8	9	16	160	183	343
“ 1 to 2 years,	61	68	52	63	4	4	7	6	10	10	134	151	285
“ 2 to 3 “	40	33	46	53	3	6	4	3	6	8	104	103	207
“ 3 to 5 “	30	29	34	56	3	5	5	5	5	5	72	101	173
“ 5 to 10 “	34	35	46	42	3	4	2	5	2	5	87	91	178
“ 10 to 20 “	15	34	29	23	3	3	2	2	2	2	49	64	113
Over 20 years,	7	10	4	14	2						13	24	37
Unknown,	34	36	24	22	4	2		1	1		62	62	124
Total,	575	733	706	882	74	81	69	96	67	115	1491	1907	3398

TABLE No. VII.

CIVIL CONDITION OF THOSE ADMITTED SINCE MARCH 31ST, 1843.

	Single.		Married.		Widowed.		Total.	
	Male.	Female	Male.	Female	Male.	Female	Male.	Female
1843-53, 10 years,	371	343	243	304	28	92	642	739
1853-63, 10 “	357	387	331	400	32	115	720	902
1863-64,	31	38	22	37	7	8	60	83
1864-65,	35	35	34	35	5	10	74	81
1865-66,	31	38	33	44	5	14	69	96
1866-67,	27	35	38	61	2	19	67	115
Total,	852	876	701	882	79	258	1632	2016
General Total,		1728		1583		837		3648

TABLE No. VIII.

SUPPOSED CAUSES OF 1,318 CASES ADMITTED SINCE APRIL, 1859.

SUPPOSED CAUSES.	1859 to 1864 5 years.		1864 and 1865		1865 and 1866		1866 and 1867		Males.	Females.	Total.
	M.	F.	M.	F.	M.	F.	M.	F.			
Ill health of various kinds, -	41	140	9	32	13	36	12	49	75	257	332
Intense mental or bodily exert'n,	28	29	8	6	5	5	1	4	37	44	81
Intemperance, - - -	47	8	10	1	6		4	3	67	12	79
Masturbation, - - -	40	9	6	6	6		7		59	9	68
Grief, loss of friends, &c., -	9	33	2	5	1	5	2	6	14	49	63
Puerperal state, - - -		37		2		7		1		47	47
Perplexities in business, -	81	2	2		5		8	1	46	3	49
Domestic unhappiness, - -	8	15	2	3	4	1	1	4	15	23	38
Religious excitement, - -	9	12		3	3	3	2	3	14	21	35
Epilepsy, - - - - -	17	5	5		1	1	2	2	25	8	33
Disappointed affections, -	8	15			1	3	3		12	18	30
Turn of life, - - - -		9		1		6		4		20	20
War excitement, - - - -	5	5	3		1				9	5	14
Paralysis, - - - - -	8	1			4	1	3		15	2	17
Paramenia, - - - - -		12		1				1		14	14
Fright, - - - - -	2	5		2		2			2	9	11
Tobacco, - - - - -	8				1		1		10		10
Use of Opium, - - - -	1	5	1	1		1		1	2	8	10
Spiritual manifestations, -	4	3							4	3	7
Injuries of head, - - -	4		1		1		1		7		7
Fever, - - - - -	2	1			1	2		6	3	9	12
Exposure of various kinds, -	3	1							3	1	4
Homesickness, - - - -		3	1							3	4
Want of sleep, - - - -	3								3		3
Sunstroke, - - - - -	1				2		3		6		6
Sexual indulgence, - - -	2								2		2
Repelled cutaneous disease,	1	1							1	1	2
Bodily injuries, - - - -	1			1					2		2
Erroneous education, - -	1								1		1
Mesmerism, - - - - -		1								1	1
Political excitement, - -	1								1		1
Fear of poverty, - - - -		1								1	1
Disappointed ambition, . -		1					1		1	1	2
Jealousy, - - - - -			1				1	1	2	1	3
Measles, - - - - -		1								1	1
Exposure to Quicksilver, (Dress- ing Furs,) - - - - -			1						1		1
Unknown, - - - - -	84	97	21	24	14	23	15	29	134	173	307
Total, - - - - -	364	452	74	81	69	96	67	115	574	744	1318

TABLE No. IX.

SUPPOSED CAUSE OF INSANITY IN 4,725 CASES ADMITTED SINCE OPENING OF THE
RETREAT, WITHOUT DISTINCTION OF SEXES.

Ill health of various kinds, - - -	899	Use of Opium, - - - -	14
Intense mental and bodily exertion, -	366	Erroneous education, - - - -	13
Intemperance, - - - -	296	Jealousy, - - - -	11
Grief, loss of friends, &c., - - -	233	Fear of Poverty, - - - -	8
Religious excitement, - - -	231	Homesickness, - - - -	8
Masturbation, - - - -	183	Change of habits, - - - -	6
Domestic unhappiness, - - -	179	Sunstroke, - - - -	6
Puerperal state, - - - -	160	Sexual indulgence, - - - -	5
Perplexities in business, - - -	118	Malformation of brain, - - - -	5
Disappointed affection, - - -	110	Mesmerism, - - - -	3
Epilepsy, - - - -	80	Apoplexy, - - - -	2
Paramania, - - - -	47	Disease of heart, - - - -	1
Injuries of the head, - - -	44	Chorea, - - - -	1
Turn of life, - - - -	39	Slander, - - - -	1
Exposure of various kinds, - - -	34	Ridicule of shopmates, - - - -	1
Paralysis, - - - -	34	Self indulgence, - - - -	1
Fever, - - - -	27	Necrosis, - - - -	1
Fright, - - - -	23	Wakemanite excitement, - - - -	1
Spiritual manifestations, - - -	21	Political excitement, - - - -	1
Use of tobacco, - - - -	21	Measles, - - - -	1
Repelled cutaneous disease, - - -	20	Exposure to fumes of charcoal, - - -	1
Disease of brain, - - - -	18	Insufficient nutrition (Grahamism,) -	1
Want of sleep, - - - -	18	Exposure to quicksilver (dressing furs)	1
Millerism, - - - -	16	Unknown, - - - -	1,371
Disappointed ambition, - - -	16		
Bodily injuries, - - - -	14		
War excitement, - - - -	14		
		Total, - - - -	4,725

TABLE No. X.

OCCUPATION OF 1,585 MALES AND 1,980 FEMALES, EMBRACING THOSE NOW IN THE
RETREAT, AND THOSE ADMITTED SINCE APRIL 1ST, 1843.

MALES.					
Farmers, - - -	459	Wheelwrights, - -	4	Peddler, - - -	1
Day laborers, - -	133	Engineers, - - -	4	Auger-maker, - -	1
Merchants, - - -	124	Hotel keepers, - -	4	Watch-maker, - -	1
Clerks, - - -	69	Factory boys, - -	4	Dentist, - - -	1
Students, - - -	44	Ship-riggers, - -	3	Wool sorter, - -	1
Mechanics, - - -	40	Druggists, - - -	3	Brass founder, - -	1
Carpenters, - - -	38	Notaries, - - -	3	Planter, - - -	1
School boys, - -	37	Woolen-spinners, -	3	Engraver, - - -	1
Shoemakers, - -	34	Harness-makers, -	3	Stereotyper, - -	1
Lawyers, - - -	33	Sail-makers, - - -	3	Tallow chandler, -	1
Physicians, - - -	30	Cigar-makers, - -	3	Ship-caulker, - -	1
Teachers, - - -	25	Army officers, - -	2	Fisherman, - - -	1
Seamen, - - -	23	Boarding-house keepers,	2	Nurseryman, - -	1
Bookkeepers, - -	22	Ship builders, - -	2	Book-binder, - -	1
Painters, - - -	18	Express Agents, - -	2	Musician, - - -	1
Blacksmiths, - -	17	Stone Cutters, - -	2	Button-maker, - -	1
Machinists, - -	17	Comb-makers, - -	2	Barber, - - -	1
Clergymen, - - -	14	Restaurant-keepers,	2	No occupation, - -	61
Cabinetmakers, -	12	Architects, - - -	2	Unknown, - - -	58
Speculators, - -	12	Bleachers, - - -	2		
Tailors, - - -	11	Paper-makers, - -	2	Total, - - -	1,585
Weavers, - - -	11	Confectioners, - -	2		
Soldiers, - - -	11	Naval Officers, - -	2	FEMALES.	
Iron founders, - -	10	Wool-carders, - -	2	Domestic Pursuits, -	1,350
Carriage makers, -	9	Brick-makers, - -	2	Domestics, - - -	123
Manufacturers, - -	9	Tanners, - - -	2	Teachers, - - -	87
Masons, - - -	9	Plane-makers, - -	2	Seamstresses, - -	61
Tinmen, - - -	9	Draymen, - - -	2	Factory-girls, - -	47
Coopers, - - -	8	Clock-makers, - -	2	School-girls, - -	39
Hatters, - - -	8	Coachmen, - - -	2	Tailoresses, - -	22
Bank Officers, - -	8	Artist, - - -	1	Milliners, - - -	17
Gunsmiths, - - -	8	Fishmonger, - - -	1	Carpet-weavers, - -	8
Jewellers, - - -	8	Stock broker, - -	1	Nurses, - - -	4
Printers, - - -	8	Varnisher, - - -	1	Clerks, - - -	3
Watchmen, - - -	6	Wool-dyer, - - -	1	Paper box-makers, -	2
Butchers, - - -	6	Carver, - - -	1	Laundress, - - -	1
Sadlers, - - -	4	Contractor, - - -	1	Shoe-binder, - -	1
Millers, - - -	4	Life Insurance Agent,	1	Hat-trimmer, - -	1
Burnishers, - -	4	Liveryman, - - -	1	Book-binder, - -	1
Sash and blind makers,	4	Turner, - - -	1	No occupation, - -	150
Silversmiths, - -	4	Charcoal-burner, -	1	Unknown, - - -	63
		Axe-shaver, - - -	1		
		House Mover, - -	1	Total, - - -	1,980
		Editor, - - -	1		

TABLE No. XI.

AGE AT THE TIME OF FIRST ATTACK OF THOSE ADMITTED SINCE MARCH 31ST, 1845.

AGE.	1845 to 1855. 10 years.		1855 to 1865. 10 years.		1865 and 1866		1866 and 1867.		Males.	Females.	Total.
	M.	F.	M.	F.	M.	F.	M.	F.			
Under 15 years, - -	26	12	27	15	2	2		1	55	30	85
From 15 to 20 years, -	85	107	86	104	5	11	9	14	185	236	421
“ 20 to 25 “ -	106	142	122	170	12	48	8	15	248	345	593
“ 25 to 30 “ -	77	131	84	161	12	16	11	22	184	330	514
“ 30 to 35 “ -	71	84	92	84	9	10	7	14	179	192	371
“ 35 to 40 “ -	38	84	65	80	6	9	8	15	117	188	305
“ 40 to 45 “ -	39	56	46	77	5	6	6	9	96	148	244
“ 45 to 50 “ -	29	33	48	36	3	7	9	6	89	82	171
“ 50 to 60 “ -	30	53	56	47	7	8	4	11	97	119	216
“ 60 to 70 “ -	22	19	26	30	4	4	5	3	57	56	113
“ 70 to 80 “ -	8	6	16	11	2				26	18	44
Over 80 years, - -		1	1	1				1	1	2	3
Unknown, - - -	55	58	42	47	2	5		4	99	114	213
Total, - - -	586	786	711	863	69	96	67	115	1433	1860	3293

TABLE No. XII.

MONTHLY DISCHARGES SINCE MARCH 31ST, 1844.

DISCHARGE.	1844 to 1854. 10 years.		1854 to 1864. 10 years.		1864 and 1865.		1865 and 1866.		1866 and 1867.		Males.	Females.	Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
April,	38	45	60	88	3	7	3	12	7	12	111	164	275
May,	36	37	76	93	5	5	10	12	10	11	137	158	295
June,	46	41	55	100	8	7	4	11	7	9	120	168	288
July,	42	54	70	72	7	5	10	6	6	8	135	145	280
August,	64	83	53	63	7	8	7	4	8	9	139	167	306
September,	44	75	56	52	6	10	2	5	9	8	117	150	267
October,	43	58	68	81	5	7	12	8	0	11	134	165	299
November,	54	55	43	70	7	6		9	3	7	107	147	254
December,	41	64	42	62	6	5	3	5	4	7	96	143	239
January,	33	32	46	57	5	5	3	3	5	11	92	108	200
February,	37	45	36	54	5	6	2	12	5	14	85	131	216
March,	53	85	73	73	8	5	7	8	5	5	146	176	322
Total,	531	674	678	865	72	76	63	95	75	112	1419	1822	3241

During the past year, while no changes or improvements have been made in our buildings, we have not been unmindful of the great importance and utility of keeping our Grounds in good condition, and of preserving and extending the plantations upon them.

The progressive developments of every year add to their beauty and to our appreciation of their value to the Institution, and also of our obligations to the gentlemen to whose admirable taste we are indebted for the original plans. Every year's experience also convinces me more and more of the wisdom of that liberality which enabled us to add these beautiful surroundings of the Institution to our means of treatment.

Even in health the enjoyment of our daily life is largely affected by the external circumstances which surround us. Much more must this be true when suffering from the effects of a disease which produces such discord among the varied harmonies of the nervous system, making their susceptible chords "out of tune and harsh." Our experience shows us that the importance of such influences upon the insane mind can hardly be measured or estimated.

The higher the refinement and cultivation of the taste, the greater the necessity and the greater the utility of these means; and as Dr. Brown well states it,* "It can scarcely be too strong an expression to use that no place can be considered too beautiful or too valuable for the temporary refuge or permanent home of insane persons accustomed to the higher comforts and luxuries enjoyed by many of our patients when in health."

Such Grounds require continued care and attention as much as buildings, and like them, may not be neglected without suffering loss or injury. A small appropriation is made every year to maintain their condition, supply deficiencies and make such additions as good taste and good keeping require. What has been done to the Grounds remains to be done to the buildings. The same principle which demanded that the broad meadow should be converted into a beautiful lawn and

* Report Bloomingdale Asylum for 1867.

pleasure grounds, and thus become of important assistance to us in the treatment of the insane, now demands a greater change; a more entire reconstruction both of the interior and exterior of the buildings of the institution." This subject came up for consideration of the Board some six years ago. Partial plans were procured and some general estimates made. The peculiar circumstances of the country, its financial condition, &c., caused these to be laid aside. Since then, the crowded state of the house has rendered any attempt at reconstruction impracticable, excepting at too great sacrifice of the well-being of our patients. The erection of a new State Hospital, and the consequent removal of a large number of our inmates, will give us the desired opportunity of making these important changes. Upon the imperious necessity of such changes, I need not dwell. My strong convictions upon this point are fully sustained by the unanimous opinion of the Board of Managers, and I trust, of the Board of Directors.

With the dissolution of our connection with the State, a new era will be marked in the history of the Retreat. It must now go back to carry out more fully than it has done for some years past, the intention of its founders. Its original aim was to provide such a home for the insane that no class of its inmates should fail to find within its walls those liberal, refined, and home-like accommodations which their habits, cultivation, and sympathies demanded.

In considering what must be the character of the changes which in my estimation have become absolutely necessary to the future prosperity and usefulness of the Retreat, I cannot express myself more clearly and wisely than has been done by one of the veterans of our specialty, Dr. T. D. Brown, of the Bloomingdale Asylum, in his able report of 1867, from which I quote. In commenting upon the changes which have become necessary in the location and buildings of that time-honored institution, he says: "There are two most important objects which might be subserved with equal benefit to the Institution and to two classes of insane persons very inadequately provided for in existing establishments. I mean,

first, the wealthy; and secondly, indigent persons of superior respectability and refinement. At present many of the former class are either kept at home, or placed in small private Asylums, under the supposition that they will have better care or be less exposed to observation than in an institution like ours. This is an erroneous idea, and yet it will certainly extend, unless arrested by the superior attractions and merits of well organized, well furnished, and well conducted Institutions. In Boston and Philadelphia no such private houses have been opened as yet, because the Institutions corresponding to our own have supplied the wants of the wealthy as well as of the less prosperous. The Appleton buildings of the McLean Asylum, near Boston, are arranged for eight patients each, and have no equal in any country, I believe. Each patient may have a parlor, bed-room and bath-room, besides the use of other rooms in common with all. The charges for board are correspondingly high, and the resulting profit to the Institution is applied to the support of worthy indigent patients. It is but just to state that these buildings were not erected by the Society of the Hospital, but with the munificent gift of one of its Trustees. The Pennsylvania Hospital for the Insane, at Philadelphia, has a less luxurious but very satisfactory class of apartments; and at Baltimore, the Shepard Asylum, now building, will have some advantages over either.

“The second class of patients whom this Institution might benefit incalculably, are those of good family connections, or of cultivated minds and refined habits of life, whose means are insufficient to meet our average rates of board. Formerly, the Asylum admitted, at a very moderate charge, a fair proportion of such patients, who would otherwise have become incurable at home, or must have gone to a State or County institution as paupers.

“For a few years past, however, the high cost of living has made it necessary to charge, even these cases, rates which are either exceedingly burdensome to the applicants, or altogether beyond their means. The new State Asylum, soon to be built at Poughkeepsie, will receive a portion of these cases at

easy prices, which they can pay; but still there will remain numerous instances of mental disease having special claims on our sympathies. Such cases will occur in the families of clergymen and other professional persons; among teachers and business men who have experienced reverses, which often cause insanity; and, also, among dependent unmarried females. Some of the Governors who have themselves supplied the means to support persons of these classes here, need no other confirmation of the reality of the distressing cases thus classified. If this Institution possessed a fund for the assistance of such persons, it would find many a worthy object for relief, and would accomplish a measure of good, not excelled by any general hospital for the sick. It is not creditable to New York, so amply provided with almost every other mode of charitable relief, that it should offer such inadequate assistance to the respectable indigent insane.

“The Pennsylvania Hospital at Philadelphia, corresponding exactly to the Bloomingdale Asylum, has, for many years, received and supported, gratuitously, forty such patients, twenty of each sex, the particular individuals being known only to the managers and higher officers. ‘The Sheppard Asylum,’ near Baltimore, will admit a still larger number of such cases, and will be the most beneficent of its kind in the country. Its founder bequeathed more than half a million of dollars to build and support an institution for the insane, and its trustees have appropriated the annual interest only; first, to the construction of the building, and, secondly, to the future support of indigent patients and the general improvement of the institution and grounds. It will also receive self-supporting patients, who will prefer it to others in that region, from the very reason that it will be able to supply their requirements.”

I quote, also, to the same purpose and for the same object, from the report for 1867 of Dr. Bemis of the Worcester Hospital, a gentleman whose large experience gives weight to his opinions.

“We hope to see, and believe the time will come, when we shall have a hospital for the insane constructed upon the best

plan for classification and treatment of the various mental disorders which affect the human race ; when we shall have the centre building the hospital proper, with every facility for treating all cases of acute mania, and for all violent and dangerous, suicidal and troublesome cases ; having every arrangement and convenience which skill and ingenuity can devise—large, airy sleeping and day rooms, improved facilities for bathing, perfect ventilation, cosy libraries, spacious parlors, convenient billiard and play rooms, and, near by, a few plain, neat and substantial cottages, capable of accommodating a family of eight or ten quiet, harmless, industrious persons ; and, not far remote, two or three houses of more style and pretension, for a class of people found in every hospital, where they could live in a quiet family, devoting themselves to reading, writing and the cultivation of gardens and such light occupations as their health would allow. All these houses would be under the charge of old and well-trained attendants, who would there find inducements to remain and make the care of the insane a life business.

“The great benefit, it seems to us, to be derived from so wide a departure from all accustomed rules, is a near approach to the family system, and the kindly influences of home treatment. Could this system, or some similar one, be carried into operation, the insane would have all the benefits they now have, with the added advantage of the family circle to such as could be admitted to its enjoyments, homely surroundings, and the enjoyment of many of the social comforts which make life pleasant. They would also have the advantage of well-trained, educated nurses and attendants, whose business for life it would be to care for and sympathize with them. They would enjoy a more free and generous style of amusement, recreation and exercise, and more frequently, and with less restraint, mingle in the society of friends and relatives ; in a word, all the enjoyments of life would be multiplied, and all the social endearments, to a very great extent, preserved, without diminishing, in any way, the prospect of recovery, or increasing the labors of the institution.”

I have quoted thus freely from these reports, because they

express the opinions of gentlemen of high position and influence in our speciality, and serve to indicate most clearly the tendency of public sentiment, and the increasing and reasonable demands of the community.

This whole question seems to me naturally to lead to a very common sense decision. Every case of insanity should have immediate and easy access to those methods of treatment which experience has shown to give the largest chances of recovery. If as we believe all such experience proves that these larger chances are more generally to be found in well organized hospitals for the insane than in private asylums, then such hospitals should be provided with accommodations of the character demanded, and limited only by the necessities of the community.

It is evident that different classes will require different styles of accommodation. The State should provide for its indigent insane, liberally and abundantly, all the needful means of treatment, but in a plain and rigidly economical way. Other classes of more abundant means will require, with an increased expenditure, a corresponding increase of conveniences and comforts, it may be of luxuries, that use has made essential. This common sense rule is adopted in other arrangements of our social life—our hotels, watering places, private dwellings and various personal expenditures.

In my opinion, it would be a very good general rule which should give to every case of insanity, when placed under treatment, all those essential, and not injurious or excessively costly indulgences which previous habits, tastes and even prejudices may require. Certainly it is evident that the more ignorant, unrefined and uncultivated do not require the same surroundings and appliances as the intelligent, cultivated and refined. Unless our hospitals supply these requirements, it is very certain private enterprise will. There is another consideration connected with this question of a good deal of weight. Experience proves that the greater success of the treatment of insanity depends upon its being commenced at an early period of the disease ; it becomes our duty, then, to

make the Institution look, both externally as well as internally, so pleasant and agreeable, that, as far as possible, prejudices may be dispelled, and all objections to a speedy committal to the Institution be removed. All observers recognize the great effect of such influences in hastening friends to the right and only safe decision in such cases.

The location of the Retreat possesses rare advantages; the near and distant views which it commands of valley, mountain and town; the luxuriant country surrounding it; the intrinsic beauty of the grounds, so artistically decorated with shrubbery and fine old trees, which half a century could hardly give us in any new location; all these present a combination which cannot be equalled in the immediate vicinity of Hartford. The gradual approach of the city has been supposed to be an objection, but the inconveniences we suffer are and will be of minor importance; so large a proportion of our border lines are bounded by public streets, and so well protected by hedges and plantations, that there is little danger of our being overlooked or incommoded by encroachments. "The site of an asylum should always be within a short distance of, and with easy access to some centre of population. While a certain measure of retirement is necessary for privacy, actual solitude is to be avoided as being oppressive, alike to patients and employees. This last class of persons must be remembered as forming a portion of the Asylum household, on whom much of its utility and favorable influences depend. They must be kept contented and cheerful, so far as this can be done, by reasonable and proper privileges, and it is obvious that this cannot be done if they are too long isolated from the outer world. An Asylum is also in daily need of communication with various tradesmen, the post office, the railroad stations; and all classes of its servitors, as well as some of the patients, reasonably desire to be within convenient walking distance of their respective places of public worship. It may therefore be said that the nearer the grounds approach such a centre, the better it is for an Institution, provided they be sufficiently spacious to insure the requisite degree of privacy."

I have gone more at length than is usual in my annual

reports, in consideration of these topics, because of their intrinsic importance.

Having this clearly and fully in my own mind, it seems naturally to fall into the line of my official duty to make presentment of them to your Board as being matters that appear to me to be intimately connected with the great object of the Institution and the just claims of the community upon it.

I am happy to acknowledge our grateful obligations to the kind friends who have remembered us in various ways during the year.

To Mrs. Robert S. Noyes of Sharon we are specially indebted for \$250 towards the purchase of a piano, and \$15, which was by request expended in an entertainment for a social gathering of ladies.

To Rev. S. Spring for a set of parlor croquet; to a friend for a large sized bagatelle board; to William S. Thompson of Paris for a valuable engraving, "The Golden Wedding;" to J. E. Coleman, two paintings of game, finely framed; to Mrs. E. G. Jerome of Hartford, a fruit piece, in water colors; to Hon. L. F. S. Foster for various public documents; to George Afflick for twenty-five well-grown and beautiful specimens of Norway spruce, and the same number of Austrian pines; to Horace Williams, two dozen Tupelo and Cornus Florida trees for the lawn, and an abundant supply of Christmas evergreens; and to Messrs. Humphrey & Seyms for a repetition of their timely and welcome gift of last year of a barrel of oranges for our Christmas tree.

To C. Robertson, Esq., of Knaresboro, England, for a large collection of lithographs of various views in Yorkshire. From the proprietors of the Hartford Courant, Times, Post and Press we have received, weekly, well selected bundles of newspapers from their files of exchanges.

From the publishers, the Hartford Weekly Courant, Columbian Weekly Register, New Haven; Waterbury American, and Mystic Pioneer, during the year.

Our pleasure parties have received courtesies, as heretofore, during visits to Messrs. Cheney's silk mills, Mrs Colt's green house, the Deaf and Dumb Asylum, State Prison and Hook and Eye Factory at New Britain.

To Dudley Buck we are indebted for fourteen tickets to his organ matinees, and to Miss Watson, Mr. T. Child and other friends for a musical entertainment; to Mr. J. W. Caldwell, "The Funny Magician," for a very interesting exhibition; to Mr. Pratt and the choir of the South Baptist Church for a vocal and instrumental concert; and to Messrs. Cady, Myers and other friends for an amateur minstrel performance.

In conclusion, I desire to express to the Board of Directors my grateful sense of the considerate kindness and liberality which, during the past year, I have received at their hands.

My thanks are also due to the officers of the Institution for their cordial, hearty and efficient coöperation and support.

Respectfully submitted,

JOHN S. BUTLER.

RETREAT FOR THE INSANE, }
HARTFORD, April 1, 1867. }

CHAPLAIN'S REPORT.

The indissoluble connection between physical comfort and successful mental effort is so well established, that he would be a bold man who should venture to call it in question. A sound mind in a sound body is the perfection of human organism and activity. The experienced medical philanthropist who has to deal with disordered intellects not only admits this as a principle, but has adopted it among the established axioms of his profession, and is alternately encouraged or disheartened as he finds, in the cases which come under his notice, a healthy or abnormal condition. And hence his earliest, and often his most successful efforts are directed to the removal or alleviation of bodily disease, in order that the mind may be restored to its legitimate and orderly action. I trust it will not be thought presumptuous if I assert this to be the acknowledged basis of all the sanative practice of this benevolent Institution. The mutual dependence and reaction of health and intellect, however disastrously ignored without these walls, are here never forgotten.

While, then, we acknowledge this reciprocity, may we not claim for our religious exercises a share in the work of restoration? The motives and sanctions of the gospel have their place here, as well as in the healthiest and best ordered communities. The insane have their religious instincts. We appeal to these, and in their use we often find that the Great Author of our frame, by whom we are "fearfully and wonderfully made," acknowledges the agency, and crowns it with his blessing. Not unfrequently, the first discernible step in restoration is a return to the due exercise of the sensibilities

we aim to excite, and every stage in the work of improvement is marked by a becoming reverence for divine things. Each part of our chapel services is designed to have such an influence as shall combine with the medical treatment employed, nor can we specify any as of peculiar significance in this regard, without depreciating the rest. The voice of sacred song, the reading of God's word, the offering of prayer, thanksgiving and praise, the hortatory, comforting and animating topics in which the preaching of the gospel abounds, are expected to have, and are sometimes seen to have the happiest effect in tranquilizing the disturbed mind, and suggesting thoughts of consolation and hope, where gloom and despondency have held undisputed sway. The power of self-control, indicated by a decent and reverent deportment during the brief season of worship, suggests the consciousness, and imposes the obligation of exercising it elsewhere; while the restraint thus exerted, even for a short period, may become a habit when its exciting cause is withdrawn. Nor may we omit to mention the influence of the silent and orderly attention of those with whom they mingle in these services, combining the power of example with that remaining self-respect and emulation of praise for which many of the insane are in no slight degree distinguished.

The past year has been, like those which have gone before it, not wanting in justification of the wisdom which incorporated religious services with the means employed for the projected benefits of the Institution. Your Chaplain has been encouraged and assisted by the coöperation of the officers and attendants and the respectful attention of the patients—aid which he would gratefully acknowledge. Beyond this he could not ask; but more than this they have done, in an unexpected and liberal donation, thus signifying their interest in his work, and securing to themselves the approbation and recompense of Him who has said, "Inasmuch as ye did it unto one of the least of my servants, ye did unto me."

Respectfully submitted,

SAMUEL SPRING.

April 1, 1867.

APPENDIX.

ADMISSION OF PATIENTS INTO THE RETREAT FOR THE INSANE, AT HARTFORD.

No patient admitted for a shorter time than three months; and payment for *that term only* is to be made in *advance to the Treasurer or a Manager*.

Subsequent expenses are to be paid, quarterly, to the *Steward*.

If the patient is removed *uncured*, before the expiration of thirteen weeks, and contrary to the advice and consent of the Superintending Physician, board is always required for that period; but if the patient recovers before the expiration of the period paid for, or leaves with the full approbation of the Physician, the excess is refunded.

Letters relating to the quarterly bills and clothing should be addressed to Mr. THOMAS H. HOLADAY, the Steward. Clothing and packages sent for the use of the inmates should be sent to the care of the Steward.

All letters in relation to the situation and health of the patients, &c., &c., will, of course, be addressed to Dr. JOHN S. BUTLER, the Superintendent.

Application for admission should be made to Dr. Butler, the Superintendent, *previous to the patients being brought to the Retreat*, in all cases. A brief statement of the case should accompany the application. The particular attention of Physicians is called to this regulation, as during the year past a number of patients, who from the crowded state of the Institution could not be received, have been brought here under the erroneous impression that no previous notice was required. It is sometimes necessary to discharge quiet and incurable cases to make room for violent and curable ones.

Form of Certificate and Request, which the friends of patients are requested to present with the application for their admission.

CERTIFICATE OF PHYSICIAN.

I hereby certify that I have seen and examined M— ———, of ————, and believe h ——— to be insane.

—————, 186—.

REQUEST FOR ADMISSION.

To be signed by a guardian, near relative or friend.

I request that M— ———, of ————, may be admitted as a patient into the Retreat for the Insane.

—————, 186—.

FORM OF BOND.

Upon the admission of ——— of ——— into the RETREAT FOR THE INSANE, at Hartford, I engage to provide or pay for a sufficiency of clothing for ——— use, and to pay to the Treasurer of the said Institution ——— dollars per week for board, medicine and medical attendance; and also to pay the expense of a separate attendant, if the Superintendent shall deem one necessary; to make compensation for all damages done by ——— to the property of the RETREAT; to pay reasonable expenses for pursuing in case of elopement; cause the said patient to be removed when discharged; and in the event of death, to pay the expenses of burial.

Principal.

For value received, I hereby engage to be responsible for the fulfillment of the above stipulations.

Surety.

HARTFORD, CONN.,

18

Approved by

FORM OF BEQUEST.

ITEM. I give and bequeath to the CONNECTICUT RETREAT FOR THE INSANE, in the city of Hartford, the sum of———dollars, to be paid by my executors out of my real or personal estate, as soon as the settlement of my affairs will permit, to the Treasurer of the said Institution for the time being, in trust, to be applied by the Directors thereof to the humane purposes of said Institution.

VISITORS.

The Managers of this Institution, aware of the interest generally felt in its prosperity, which is naturally connected with a desire to visit its inmates and inspect its internal arrangements, are convinced that the welfare of the patients and the duties of its officers require that such visitation should be subject to the following regulations:—

I The Institution will be open for Visitors (Sundays excepted) from two to four o'clock in the afternoon.

II. All visitors, except persons having business at the Retreat, will be required to provide themselves with tickets for admission, from the Managers or the Treasurer, either of whom will grant the same, unless their knowledge of circumstances make it, in their judgment, necessary to refuse.

MANAGERS.

S. S. WARD, 23 High Street.

WM. R. CONE, 2 Central Row.

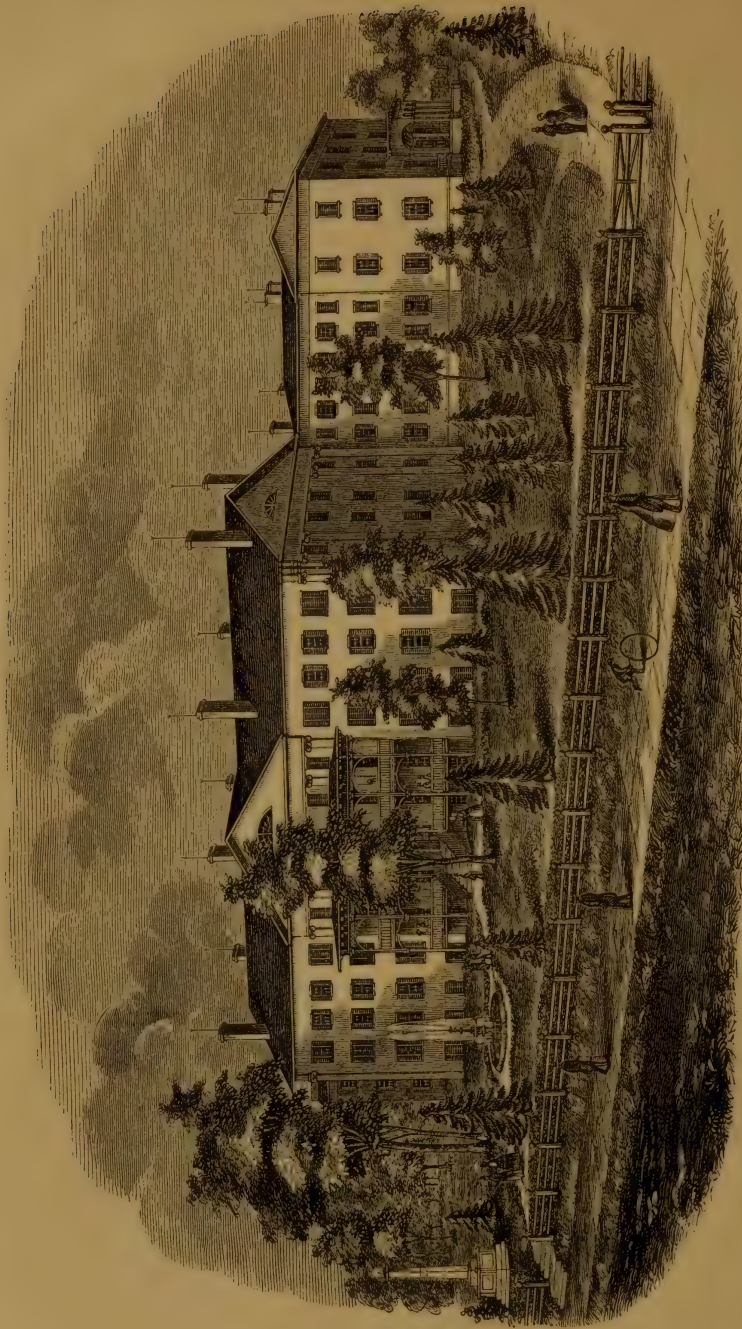
CALVIN DAY, 73 Asylum Street.

TREASURER.

THOMAS SISSON, 259 Main Street.







AMERICAN ASYLUM.

ALPHABET OF THE DEAF AND DUMB.

a



b



c



d



e



f



g



h



i



j



k



l



m



n



o



p



q



r



s



t



u



v



w



x



y



z



&



THE
Fifty-First Annual Report
OF THE
DIRECTORS AND OFFICERS
OF THE
AMERICAN ASYLUM
AT
HARTFORD,
FOR THE EDUCATION AND INSTRUCTION
OF THE
DEAF AND DUMB.

PRESENTED TO THE ASYLUM MAY 11, 1867.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS.
1867.

Board of Directors.

PRESIDENT.

HON. WILLIAM W. ELLSWORTH.

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By Election.

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JOHN C. PARSONS,

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HON. JOHN D. LYMAN Secretary of State.

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REV. COLLINS STONE, M. A.

INSTRUCTOR OF THE GALLAUDET SCIENTIFIC SCHOOL.

JOHN C. BULL, M. A.

INSTRUCTORS.

DAVID E. BARTLETT, M. A.

JOHN R. KEEP, M. A.

RICHARD S. STORRS, M. A.

EDWARD C. STONE, M. A.

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ARTHUR H. WHITMORE.

WILSON WHITON.

WILLIAM H. WEEKS.

MARY A. MANN.

SARAH W. STORRS.

CATHARINE BLAUVELT.

TEACHER OF DRAWING.

MISS LOUISE STONE.

ATTENDING PHYSICIAN.

E. K. HUNT, M. D.

STEWARD.

HENRY KENNEDY.

ASSISTANT STEWARD.

SALMON CROSSETT.

MATRON.

MRS. PHEBE C. WHITE.

ASSISTANT MATRONS.

MRS. REBECCA A. CADY.

MISS NANCY DILLINGHAM.

RUFUS LEWIS, MASTER OF THE CABINET SHOP.

WILLIAM B. FLAGG, MASTER OF THE SHOE SHOP.

MISS MARGARET GREENLAW, MISTRESS OF THE TAILOR'S SHOP.

REPORT OF THE DIRECTORS.

TO THE PATRONS AND FRIENDS OF THE AMERICAN ASYLUM :

The last Report of the Asylum was presented as the fiftieth anniversary of its incorporation occurred, but it is only now that we can record the completion of the first half-century of its actual working existence, or academic life.

On an occasion of so much interest to the Institution, our friends may have expected from the Board some account of its origin, and a review of its growth and development. But any extended treatment of these topics on their part, is rendered unnecessary by the able and interesting historical sketch contained in the accompanying Report of the Principal.

The Report of 1866, mentioned the fact, that of the original corporators, who were not then officers of the Asylum, only four survived. As we write, one of these, Mr. Dudley Buck, an old and esteemed friend of the Board, has just passed away. The others still living are seldom able to take part in our counsels. Of late years, no additional members of the corporation have been elected, except as vacancies have occurred in the Board, and the Officers and Directors have, practically, constituted the whole Corporation. This state of things has resulted from no wish on the part of the Directors to reduce or limit the numbers of the Corporation, but simply from the impossibility of inducing corporators, especially those not residing in Hartford, to attend the meetings of the Society, where the business is chiefly of a formal character, usually consisting in the choice of officers. But though we think it clear that no advantage can be gained by increasing the number of corporate members, the question has been lately discussed whether the number of Directors

might not properly be increased, and, especially now that a majority of the pupils are beneficiaries of the several New England States, whether some gentlemen who could officially represent these States, might not be added to our number. No change could give greater pleasure to the present Board, than one which would bring to their meetings gentlemen from neighboring States, who are interested in the care and education of the Deaf and Dumb. The only hesitation entertained on this point, results from a doubt whether non-resident directors would find it possible to be present at our meetings. In accordance, however, with a suggestion made by the Hon. Frank B. Fay, Chairman of the Special Committee of the Massachusetts Legislature, to whom the subject of the education of their deaf mutes was referred, the proposal to enlarge the administration was brought before the Board at their recent meeting, and met their cordial and unanimous approval. The necessary alteration in the By-Laws was made, and the Governors and Secretaries of each of the New England States were elected *ex-officio* members of this Board.

The course of events at the Asylum during the past year calls for no other comment than a reference to the Reports of the Principal, Physician, and Steward. That all matters connected with the department of instruction, and with the domestic management have progressed harmoniously and successfully, is a better tribute than any words of ours, to the faithfulness and ability of the heads of these departments and their assistants.

In behalf of the Directors,

JOHN C. PARSONS, *Clerk.*

HARTFORD, May 25th, 1867.

REPORT OF THE PRINCIPAL.

TO THE BOARD OF DIRECTORS :

GENTLEMEN :—In presenting the Fifty-first Annual Report of this Institution, I have the pleasure of reviewing a year of almost uninterrupted health, and of gratifying progress in the varied departments of labor and instruction.

The average number of pupils in attendance has been two hundred and twenty-four, which is somewhat larger than last year. At the date of my last report, two hundred and fourteen were present. Thirty-nine new pupils, and seven former pupils have been admitted, and thirty-six dismissed, making the whole number under instruction during the year, two hundred and sixty, and the number now in attendance two hundred and twenty four. Of this number, one hundred and thirty-four are males, and ninety are females.

The past year has brought several changes in our corps of instructors. Mr. Jared A. Ayres, who has been connected with the Institution for thirty-one years, and for eleven years the teacher of the Gallaudet Scientific School, retired from his long-continued and most acceptable service, at the close of our last term. At the same time, Mr. Jonathan L. Noyes, a teacher of fourteen years experience, six of which have been spent in the Asylum, tendered his resignation, to accept the position of Principal in the institution for the education of deaf mutes at Faribault, in the State of Minnesota. The loss of able teachers, who by long experience in their work, have become familiar, not only with the natural language of the Deaf and Dumb, but with their peculiar modes of thought

and expression, and are thus qualified to render efficient service, is one of the greatest trials, which as an Institution, we are called to meet. Such occasional losses are unavoidable, yet the policy ever pursued by the Board, of employing only teachers of ability, and retaining them in its service as long as possible, has proved a wise and fortunate one.

While our large family has been almost entirely exempted from sickness during the year, we have to mourn the sudden death of a young lady employed in teaching one of the primary classes. Miss Catharine T. Robinson, who had been with us a little more than one year, died on the 13th of Nov., after a short illness, from an attack of acute bronchitis. Miss Robinson was a semi-mute, a young lady of estimable character, faithful and successful in the discharge of her duties, and warmly loved by her associates, and by the pupils under her care.

In filling the vacancies thus made, we have been fortunate in again securing the services of Mr. Richard S. Storrs, so long connected with us, and recently with the National Deaf Mute College, at Washington, who finds a northern residence more favorable to his health. Mr. Arthur H. Whitmore, an instructor of one year's experience in the Pennsylvania Institution, and Mr. Job Williams, a recent graduate of Yale College, have been engaged, and have entered upon their work with commendable interest. The vacancy occasioned by the death of Miss Robinson, has been temporarily supplied. Mrs. Rebecca A. Cady has also been engaged as assistant Matron, and has acceptably discharged the duties of that position.

The Institution completed its fiftieth year on the 15th day of April. The present occasion, therefore, seems suitable for recounting briefly some incidents connected with its early history, the varied changes through which it has passed, and the work it has accomplished. The noble men who took an active part in its establishment, who contributed so liberally to its funds, and by their energy and counsels, set it forth so successfully on its course of usefulness, have nearly all passed away. Yet the school they founded with so much forethought, and watched over with so much care, still continues to dis-

pense its blessings, and has never pursued its beneficent work more efficiently and successfully than it is doing at the present time. In reviewing the plans of its founders, and its subsequent history, it will appear that their benevolent intentions have been realized far beyond what their warmest hopes could have anticipated.

It was a striking incident in the plan of Providence, that the illness of a little child in a private family in the city of Hartford, in the year 1807, should bear an intimate relation to the welfare of a large class of persons, subjected to a peculiar misfortune, scattered over different portions of the country, for all coming time. Had the malady* of little Alice Cogswell been less severe, had it yielded more promptly to the remedies which skill, and the most assiduous care could suggest, the sad condition of the unfortunate deaf mutes of the country, without knowledge or instruction, might for a still longer period have failed to awaken the active efforts of the benevolent. When, however, after the elasticity of health had returned, it became evident that the ear of the beautiful child was closed to the voice of affection, and all the sweet sounds of the outward world, a fountain of sympathy was stirred that in its abundant flow, went forth to the aid of thousands whose mute and silent affliction had hitherto appealed in vain for relief.

The condition of deaf mutes had already begun to excite attention and sympathy. As early as 1812, a Committee appointed by the General Association of Connecticut to investigate the subject, reported to that body, that there were eighty-four deaf mutes within its bounds; that in the same proportion, there must be more than four hundred persons in this unhappy condition in New England, and more than two thousand in the whole country. The public mind was thus gradually prepared to welcome some plan for their education.

On the 1st of May, 1815, a company of seven gentlemen, of whom the Rev. Dr. Strong was one, met in a private parlor in this city, to take the subject into consideration. After

*The spotted fever.

consultation, they decided to send abroad a competent person, to acquire the art of instruction, and to establish a school for the education of deaf mutes in this country. The sum necessary to defray the expense was soon subscribed, and the Rev. Thomas H. Gallaudet was fixed upon, as the proper person to undertake the responsible mission. A more fortunate choice could not have been made. Graduating with the second honor in one of the most noted classes of Yale, distinguished for his proficiency in English literature, particularly eminent in mathematical science, with attractive social qualities, polished address and devoted piety, he entered with characteristic ardor upon the new enterprise.*

Mr. Thomas Braidwood, Sr., had opened a private school for the education of deaf mutes in Edinburgh, in the year 1760. He was an accomplished teacher, a man of great perseverance, ardent and enthusiastic in his new profession, and soon brought his art into the favorable notice of benevolent and scientific men. In 1783, his school was removed to Hackney, near London, where it was continued till his death, in 1806. At the time of Mr. Gallaudet's visit, there were but three institutions for the education of deaf mutes in the British Isles: the London Institution, established in 1792 by Dr.

*No higher testimony need be given to the eminent ability of Mr. Gallaudet, or to the estimation in which he was held by the leading minds of the country, than the efforts made to obtain his services, when, in 1830, it became known, that in consequence of failing health, he was about to leave the Asylum. His biographer remarks, "it is believed that the services of no man in this country were ever more earnestly sought for in so many departments of philanthropic labor. The impression was almost universal, as far as he was known, not only that he was eminently qualified to take charge of any benevolent institution in the land, or for any educational service to which he might be called, but that he was the *first* man to be thought of, for places of the highest responsibility." Among the Societies and institutions that endeavored, many of them most persistently, to secure the benefit of his talents and experience, may be mentioned, the American Colonization Society, the New England Asylum for the Blind, Boston, the New York University, Dartmouth College, the Oneida Institute, the Utica Female Seminary, the Norwich Female Seminary, the High School at Burlington, New Jersey, the New York High School, the Cincinnati Seminary, etc.

Joseph Watson, a relative of the elder Braidwood ; a school at Edinburgh, opened in 1810, under the care of John Braidwood ; and one at Birmingham in 1814, under the charge of Thomas Braidwood, both grandsons of Thomas Braidwood of Edinburgh. The method of instruction adopted by the elder Braidwood was by articulation, and the other schools naturally followed in the track of their leader. Even at this early day, however, in spite of the enthusiasm created by the seemingly miraculous achievement of restoring speech to the dumb, observant men began to realize the difficulties of this system of instruction, and its unsatisfactory character in the case of a large class it was designed to benefit. The same objections to it as a general method of deaf-mute education, inherent in the system, were noticed then, as now. Dugald Stewart, whose account of the deaf, dumb and blind boy, James Mitchell, excited so much interest in the philosophic world, expressed his decided conviction that the benefits which articulation professed to confer upon the deaf mute were more apparent than real, and that it served rather to "astonish the vulgar," than to render him any valuable aid in his education.* The system of Sicard, then at the acme of his fame, whose weekly exhibitions of his pupils in London was at that time drawing crowds of the nobility to his levees, was creating a sensation among intellectual men, and even thus early, the tide began to set in the direction of instruction by signs.

On arriving in England, Mr. Gallaudet naturally repaired to the London Institution for the desired instruction. His application was coldly received. Dr. Watson, though willing to furnish an assistant to return to this country and inaugurate the enterprize beyond the sea, would hardly consent to communicate his mysterious art to a stranger for this purpose. After much delay and prolonged negotiation, the best terms that could be obtained were, that after a trial of one month, 'upon liking,' the applicant might enter the Institution as an assistant, to remain on the usual terms, three years, unless Dr. Watson saw fit to release him before that time, as duly qualified. As "the usual terms," in addition to other

* Trans. Roy. Soc. Edin. Vol. VII, p. 39.

duties equally agreeable, required thirteen hours confinement daily with the pupils, with the drudgery of supervision in and out of school, the terms were of course declined. The application at Edinburgh was equally unpropitious. Mr. Kinniburgh, the head of the Edinburgh school, received Mr. Gallaudet with great cordiality, but could render him no assistance, having placed himself under bonds of a thousand pounds not to communicate his art to any person for seven years, and of these, three still remained.

The embarrassments thus thrown around the object of his mission at these points, were most Providential and fortunate. In consequence of these difficulties, Mr. Gallaudet was induced to accept the cordial invitation of Sicard, and accompany him to Paris to obtain the desired qualifications. We say this result was Providential and fortunate, for it proved that although instruction by articulation was the only mode of educating deaf mutes practiced in England at that time, yet this method was found, after faithful trial in the English schools, to be so unsatisfactory, that in the course of a few years they began, with one exception, to abandon it, substituting in its place instruction by signs. Of the twenty-three schools now existing in the British Isles, twenty-two use signs, and one articulation, as the medium of instruction. That the system, if it had been introduced here, would have proved any more satisfactory than it has there, we have no reason to believe. Indeed, the imperative demand of our people for something that is practically useful, would probably have led to its still earlier rejection. We were, however, saved the labor and loss of time which would have attended the trial of the system in this country, and enjoyed the immediate benefits of one which has proved by far the most successful method of educating deaf mutes that the world has yet seen.

The early opinions of Mr. Gallaudet were probably essentially modified by his conversations with the Scotch philosopher above mentioned, with whom he was well acquainted, and in whose family he was a frequent visitor. The merits of the two systems soon began to excite attention, the London

Quarterly Review and the Christian Observer entering warmly into the discussion.* To the latter, Mr Gallaudet contributed several articles, showing that whatever circumstances may have led to his adoption of the system of signs in the first instance, its superior excellence soon commended itself to his best judgment.

A somewhat significant fact, as illustrating the practical value of these two methods of instruction, is worthy of notice, in passing. On the death of Mr. John Braidwood, in 1830, after the school at Hartford had been in operation only about thirteen years, Mr. William C. Woodbridge, who had been a teacher there three years, received from the Committee a pressing invitation to take charge of the Birmingham School, on the ground that "a change in the system of instruction

* A writer in the former thus sharply expresses himself:

"Experience, however, soon convinced him," the Abbe de l'Epee, "that the object gained by enabling them to utter articulate sounds, was by no means an equivalent for the difficult and disagreeable nature of the task; he therefore relinquished entirely this part of his original plan, as adapted merely to amuse or astonish the ignorant.

"We feel no hesitation in declaring that our sentiments upon this point, perfectly coincide with those of the Abbe. We consider the pains taken in teaching the deaf and dumb the utterance of articulate sounds, an absolute misapplication of the labor and patience of the instructor, and an unnecessary waste of the time and attention of the pupil.

"There are many individuals who hear and speak, whose tones are so harsh and dissonant, that in all communications with them we should scarcely lament the necessity of confining ourselves to the use of signs and written characters. There is not one among the deaf and dumb, who, by any degree of care and length of practice, acquires a melody and intonation of voice which can render his enunciation even tolerable. Their utterance is found, by experience, to be so disagreeable, that it is seldom or never used out of the precincts of the establishments in which it is taught. Add to this, that the contortions of countenance with which it is accompanied are of the most unpleasant kind; in many cases they completely mould the features to a peculiar cast, and the unnatural contour of the face thus produced, cannot fail to augment the pain already excited by the jarring and monotonous sound of the voice. For the truth of this, we appeal with confidence to the friends of the pupils educated by the late Mr. Braidwood. After years of toil and torture, they returned to their families with an acquisition not very agreeable to their acquaintances, and confessedly useless to themselves."—Lon. Quar. Rev., Vol. XXVI., p.p. 395-6.

hitherto pursued in that and similar institutions in England, was highly expedient, as shown by comparing the progress made by their pupils with the similar progress made by the pupils educated in the schools of Paris, Hartford, New York and Philadelphia. This superior progress is attributed by the Committee to the practice in the institutions last named, of improving and systematizing the language of gesture and expression, as the spontaneous and universal medium of communication of deaf mutes with each other, and the most direct way of developing their minds and imparting knowledge." Mr. Woodbridge had not sufficient health to allow him to accept the offer, but the offer itself, with the reasons given, are not without their significance.*

The mission of Mr. Gallaudet excited great interest among the distinguished men at that time residing in this "Athens of the World." The celebrated Dr. Thomas Brown remarked to him one day, "If I were not engaged in my duties in the University, I know of no pursuit in which I could take more delight than in the instruction of the deaf and dumb." Mental science was receiving particular attention, and the case of Julia Brace, deprived at the age of four years of sight and hearing, and a protégé of Mr. Gallaudet, was a most interesting subject for philosophical discussion and enquiry.

After spending some months in Edinburgh, Mr. Gallaudet repaired to Paris, where he arrived on the 9th of March, 1816, and immediately applied himself most assiduously to the object of his mission, under the instruction of the distinguished Sicard.

While the enterprise was thus progressing abroad, its friends in this country were not idle. A charter for the new Institution was obtained from the Connecticut Legislature at the May session of this year, under the name of "The Connecticut Asylum for the Education and Instruction of Deaf and Dumb persons." Of the sixty-three persons, (two of them ladies,) named in the original act of incorporation, embracing many of the most prominent citizens of Hartford,

* Barnard's Tribute to Gallaudet, p. 77.

only eight now survive, and four are still officially connected with the Asylum.

Mr. Gallaudet returned to this country August 9th, bringing with him Mr. Laurent Clerc, a gentleman deaf and dumb from birth, one of the most distinguished pupils of Sicard, who had been for ten years employed as a teacher in the Royal Institution at Paris. Mr. Clerc had been educated entirely by signs, and was an excellent example of the value of this method. The first eight months after their arrival were occupied in passing through various portions of the country, exciting an interest in their work and raising funds. The striking illustration which Mr. Gallaudet took with him, of the extent to which the misfortune of deafness can be alleviated by education, excited unbounded astonishment. The assistant proved to be so intelligent, and to possess so perfect an acquaintance with both the French and English languages, that some persons were even disposed to be incredulous respecting the reality of the infirmity in his case, and to suspect deception. An amusing instance of this incredulity occurred during the visit to Quebec. Mr. Clerc was sitting in a book-store, occupied in reading. The proprietor, feeling some suspicion respecting the deafness of a man who could use the French language so readily and correctly, determined to satisfy himself by actual experiment, and going up quietly behind him, clapped his hands violently near his head. Though profoundly deaf, and perceiving no sound, Mr. Clerc felt the rush of air, and immediately turned his head for the cause. This movement fully convinced the Frenchman of his ability to hear, and his politeness scarcely prevented his expressing, in decided terms, his sense of imposition.

The enterprise took a deep hold of the benevolent mind, and contributions flowed in liberally, especially from the New England States. The Governor of Connecticut, Mr. Wolcott commended the work to public sympathy by a special proclamation, and encouraged collections in the churches. About \$12,000 were obtained previous to the opening of the school. This event took place, as has already been intimated, on the 15th of April, 1817, in the building now occupied as the City

Hotel. The number of pupils at the opening of the school was seven, which was increased before the close of the year to forty-one, rendering necessary the employment of three additional teachers. Of these forty-one pupils, fifteen were from Connecticut, eight from Massachusetts, four from New Hampshire, one from Rhode Island, two from Vermont, two from New York, three from Pennsylvania, two from Virginia, three from Maryland, and one from Ohio. The impression was at first quite general, that one institution would suffice for the wants of the whole country, up to this time the census having made no enumeration of the number of deaf mutes. The mistake, however, was soon apparent, and in 1818, the New York Institution was commenced. The Pennsylvania school followed in 1820, and that of Kentucky in 1823.

A grant of land from the National Congress in 1819, secured the permanent usefulness of the Institution. This was obtained in response to a petition from the Board of Directors, presented and ably advocated by the Hon. Nathaniel Terry, and the Hon. Thomas S. Williams, from this city, who at that time represented Connecticut at the seat of government. The efforts of these gentlemen were warmly seconded by other prominent members from New England, and by the Hon. Henry Clay, the Speaker of the House. The grant gave permission to take a section of any unoccupied land in the territory of the United States, and selection was made of a tract of about 23,000 acres, lying in the State of Alabama. Although some years must elapse before the land could be sold, yet the Directors felt authorized by the possession of these means, to provide suitable and permanent accommodations for the growing school. A beautiful site comprising about seven acres, situated on a hill half a mile west of the city, was obtained. It was covered with fruit trees and valuable buildings, and was occupied at the time as a gentleman's country seat. The price paid was \$8,600. The foundations of a spacious edifice were laid, and the building pushed forward rapidly to its completion. In the course of the next ten years most of the land in Alabama was sold, and its pro-

ceeds made available. The labor and perplexity involved in this transaction were immense. It was most skillfully and judiciously effected by the late William Ely, Esq., of this city, to whose efficient management of this complicated and extended interest the Corporation are under lasting obligations.

The fund thus placed in the hands of the Directors, was unaccompanied with any restriction or condition whatever. It was given them to use according to their best judgment in promoting the education of the deaf and dumb. Without the least departure from this general object, they might have used it to build up a local Institution, retaining the local name. But the Board did not so purpose. They determined to extend the benefits of their fund as widely as possible, and with it to accomplish all the good in their power. The change from "The Connecticut" to "The American Asylum," which, as indicating this purpose, they secured in their corporate name, has before been alluded to in these Reports. In making the application, three reasons are given for desiring this change: first, that the original object of the Institution was to relieve this infirmity wherever found; second, the liberal contributions to its funds from individuals; third, the generous grant of the government—all rendering it proper, in their judgment, that the doors of the school should be thrown open to the unfortunate from all parts of the country. These liberal and catholic principles have governed the Board during the fifty years of its corporate existence. All who have entered the school have shared equally its advantages, no distinction being made between public and private pupils, or between those residing near and those coming from a distance.

No one can become familiar with the early history of the Asylum, without being struck with the religious element which inspired and prompted the whole movement. It was, from its inception, a work suggested and carried forward by warm Christian benevolence. Says Mr. Weld, "the Directors had ever regarded their enterprize as one of piety and Christian charity. They were acting for the benefit of per-

sons whose condition of intellectual and moral darkness excluded them, like the heathen, from the hopes, the consolations, the knowledge, even, of Christianity.”* It was this aspect of the work, preëminently, that attracted the interest of Mr. Gallaudet, and induced him to give himself to its accomplishment. His correspondence indicates that he was so strongly impressed with the sacred character of his mission, as scarcely to feel at liberty, while abroad, to spend time in visiting works of art, which otherwise would have afforded him so much gratification. He seemed to feel that all his time must be sacredly devoted to preparation for his responsible duties. When the new edifice was nearly completed and ready for occupancy, the following resolution, passed by the Board, will show what motives had governed them in the prosecution of their labors.

“WHEREAS, an edifice has lately been erected by this Institution, and is now ready for the reception of pupils, and in pursuance of the humane and pious design of the founders of the Asylum, the Directors have constructed it, not only to promote the improvement of the pupils in human and divine knowledge, but have also designed it as a sanctuary where they may worship God;—for these reasons, and because the donors and friends of this Institution have cause to praise Him for having so prospered their undertakings, as to enable them to build so spacious and goodly an edifice, as also generally, for His smiles upon the Institution, the Directors resolve to meet, and invite the members of the corporation and their fellow-citizens, to meet at said house on the 22d day of May next, at 2 o’clock p. m., and there dedicate said house to Almighty God, and in solemn acts of worship, to record His goodness, and supplicate His blessing on this infant Seminary.”

In accordance with this resolution, an interesting service was held at the time designated, and the Principal, at the request of the Board, delivered a sermon from the steps of the new building to a large audience. It may be proper to remark in passing, that the religious feature which was so prominent in the early history of the Asylum, has ever maintained its place in the estimation of the Directors. They

have designed it to be an eminently Christian school, managed and taught by Christian men, and instructing the children, not in the dogmas of a particular sect, but in the principles, hopes, and consolations of the Gospel.

As schools for deaf mutes began to be established in other parts of the country, deriving, in most instances, their heads, and in all, their systems of instruction from the Parent School, it became evident that the peculiar field of usefulness for the Asylum should be the New England States. Although pupils had already been sent to the school from these States, and in some of them Legislative provision had been made for their support, yet no general arrangement had been effected by which all the deaf mutes of New England could have the advantages afforded by the liberal policy which had been adopted by the Directors. On the 25th of January, 1825, Commissioners appointed by the Legislatures of the four Northern States of New England, met at the Asylum to take this subject into consideration. The object of this meeting was "to inquire into the state of the Asylum as respects its funds, the instruction, treatment and employment of the pupils, and to ascertain the terms and conditions upon which the deaf and dumb who might be sent from these States, could be received." As the arrangement which was at that time consummated, was of some importance in the subsequent history of the Asylum, one or two extracts from the records of the Institution explaining its nature, and the views of the Directors in its ratification, may not be without interest. We quote from the Ninth Report:

"At the conference which took place between the Commissioners and the Directors, a free exposition was made of the condition of the Asylum, its management, its funds, its resources, its expenditures and its prospects. The deliberations and proceedings were marked with the most entire reciprocal confidence, and the effects that are likely to follow, we cannot but consider as highly auspicious to the general interests of the deaf and dumb. We think we are perfectly safe in saying, that after a very full and minute investigation, the Commissioners were satisfied that the terms proposed by the Asylum, were such as would enable it to *do the most good in the most effectual way, to the Deaf and Dumb of our common country.*"

"On this principle the Directors have ever acted, and will still continue to act, deeming it their sacred duty, as they are chiefly indebted for their funds to the munificence of the General Government, so to manage their resources and conduct the Institution under their care, that its benefits may be communicated in the most equal and impartial manner to every State in the Union that may wish to participate in them."

In the proposition made by the Board to the Commissioners, these principles were made prominent. It was in the following terms :

" *Whereas*, The States of Massachusetts, New Hampshire, Vermont and Maine have sent Commissioners to examine into the state and condition of this Institution, as it respects its funds, and the instruction, treatment and employment of the pupils, and to ascertain the terms and conditions upon which the deaf and dumb who may be sent to the Asylum from these States will be received ; Now, therefore it is hereby

" *Resolved*, That we will receive the deaf and dumb who may be sent to the Asylum by the States aforesaid, respectively, or such of them as shall agree to our proposals, for the sum of one hundred and fifteen dollars per annum for each pupil, and for that sum to furnish such pupil with instruction, board, washing and lodging, and stationery for the school-rooms, and to teach them mechanical trades, as is hereinafter specified ; and that the sum aforesaid shall be varied from year to year, as the state of the funds shall warrant, such sum to be fixed by the Directors at the commencement of each year, and to continue for one year, the year to commence on the last Wednesday of May, the money to be paid in advance, semi-annually. And further

" *Resolved*, That the Board of Directors will act in future, as they have done heretofore, upon the principle of making the charity with which they are intrusted as extensively useful as possible ; and for that purpose, to expend all that they have a right by law to expend, (the product of their fund,) and to distribute it with an impartial hand, extending its benefits equally, not only to the States aforesaid, but to all other States in the Union who may send their deaf and dumb to the Asylum upon the terms and conditions contained in this resolution ; also to indigent individuals ; so that as our fund increases, (as we may reasonably expect will be the case,) the sum to be received as aforesaid, for instruction, &c., will be lessened from time to time, always calculating to expend, during the year, the income of the

year, after reserving such sum as the Directors shall deem meet for contingent and unforeseen expenses."

As the result of this conference, the Commissioners voted unanimously to recommend to their respective Legislatures to accept the proposals of the Board, and to send their deaf mutes to the Asylum for education. The recommendation was promptly adopted by each of these States, and the requisite appropriations made for carrying it into effect. Rhode Island came into the arrangement in 1842. A more honorable, benevolent, generous, judicious disposition of funds committed in trust to a Corporate Body, to use freely and at its own discretion, cannot be found in the record of human affairs. It was as pure an outworking of Christian charity, and as free from selfish and personal ends, as any human transaction can well be. The sole object of the Board in the arrangement, was "to do the most good, in the most effectual way, to the deaf and dumb of our common country." Yet this arrangement has been styled in certain quarters "a monopoly" of the instruction of the deaf and dumb, and its operation an effort to obtain *patronage*!

The arrangement thus consummated with the States of New England for the education of their deaf mutes has been continued with mutual satisfaction to the present time. Pupils have annually entered the Institution from all these States, and at the close of their terms have returned to their friends, greatly relieved of their misfortune. The number received from each State, and the whole number who have enjoyed the benefits of instruction, will be stated elsewhere.* On the part of the Directors, the contract which was thus entered into, has been most faithfully and liberally carried out. The fund has been skillfully and gratuitously managed, and not a dollar has been lost. The buildings and grounds have been enlarged as the wants of the school have required. A large corps of educated and able men have been employed as instructors, and the success of their efforts in the education given to the deaf and dumb has been surpassed by no Institution in this country or the world. Experienced Matrons and

*Appendix No. VIII.

Stewards have had charge of the internal affairs of the household, special care being taken to throw around the children in their life at the Institution, the kind supervision and pleasant associations of home. Shops have been erected, tools provided, and competent men employed to teach suitable trades, by which they might obtain a support in after life. The graduates of the Institution, now numbering about fifteen hundred, scattered over all parts of New England and the country, are the best possible testimony to its high success, and to the thorough and practical character of the education which it has imparted.

Carrying out the purpose they had adopted of making their fund as useful as possible, the Directors, in 1835, authorized the Principal to visit, with some pupils, the States of South Carolina and Georgia, to excite an interest in the subject and secure some provision for the education of their deaf mutes. The advantages of the Institution were offered to these States on the same terms as to those of New England. The offer was promptly accepted, and appropriations were made for the education of their children at the Asylum. They continued to be sent here for this purpose, until both these important States had established Schools within their own limits.

The subsequent history of the Asylum, while affording few incidents requiring record, has been one of increasing and expanding usefulness. The flying years have brought their inevitable changes to directors, principals, teachers and pupils, while upon the entire enterprise has rested the evident blessing of God. The degree of health among the pupils from year to year, has been almost without example in establishments of this kind. Modifications in methods of instruction, and improvements in the management of all departments, which experience has suggested, have been promptly adopted.

In two departments, changes have taken place that are specially worthy of note. The arrangement made by the Directors for boarding the pupils, when the school was first opened, was that which usually obtained in similar cases, viz., paying a certain sum per week for each pupil to some person who, for this compensation, was to be responsible for

this department. After a few years' trial, this method was found objectionable. It was placing both the comfort and the health of the pupils at the mercy of one individual, whose direct *pecuniary* interest it was to provide for them as cheaply as possible. Although the persons employed by the Board to take this charge, were men of integrity and kindness, yet it was a position of trial to which few persons should be subjected, and which could hardly fail to prove unfortunate in the end. As early as 1836, this arrangement was changed by the appointment of a Steward, who was instructed to provide whatever was suitable, and the Board paid the expense, whatever it might be. This management, the only one that should be tolerated in any public or private school, has been since pursued with the best results.

The changes made, and the progress realized in the methods of instruction, have been most marked and important. In the earlier periods of instruction, much use was made of the system of methodical signs, so carefully elaborated by De l'Epee and Sicard, by which not only the different parts of speech, and their appropriate places in a sentence were designated, but each word, whatever its quality, modification or form, had expression in a definite and fixed sign. By this method, the exact words of any sentence could be given to a pupil in their proper order. These signs were greatly simplified and improved by Mr. Gallaudet and his early associates, who entered with enthusiasm upon their new labor, and were highly qualified for its prosecution. The system, however, was complicated and cumbersome. Words nearly-synonymous, having only a shade of difference in meaning, must yet have each a distinct sign. To become familiar with these signs was found to involve great labor, and even after they were acquired, it was seen that informing a pupil the position of a word in a sentence, without giving a reason why it should be there, rather than in another place, was of little utility. Later instructors have improved upon these methods, by abandoning the use of methodical signs altogether, and they now remain, as far as American schools are concerned, an interesting monument to the ingenuity and

perseverance of their authors. The old methods also introduced, at the commencement of the course, long vocabularies of names. The earliest books published contain interminable lists of words of every class and description, which the pupil was required to master, before proceeding to connected language. It is the habit of modern teachers, as soon as the pupil has the requisite materials to construct a sentence, to put him at once into the simplest forms of connected language, so that passing on from these to those more complicated, he proceeds intelligently till he overcomes every obstacle, and obtains a complete knowledge of this most difficult subject. The end of instruction, to restore the pupil to communication with society by making him acquainted with written language, is the same now as when the school was first opened. The main instrument for accomplishing this work, the natural language of the deaf mute himself, is used by our teachers now, as it was in the earlier stages of instruction ; but the processes by which this end is attained are entirely different, so different that little similarity could be detected. We are free to say, that in no branch of education has so much advancement been made in methods and processes of teaching, within the last fifty years, as in the education of the deaf and dumb.

But the crowning honor of the Asylum and of its distinguished Founder is, that here, first, was introduced by him, the exercises of religious worship, in the beautiful and expressive language of signs. Says Dr. Peet, in his appreciative tribute to the memory of Mr. Gallaudet, " first of all teachers of the deaf and dumb, he established for his pupils the regular worship of God, including prayer, praise, instruction and exhortation, in the only language which can be made intelligible to the mass of an assembly of deaf mutes ; the only language, also, which, even with well educated deaf mutes, goes directly to the understanding, the conscience and the heart." The daily and weekly exercises of religious worship, here first commenced in the language of signs, as it has ever been maintained in American Institutions, is a source of unspeakable interest and profit to these " children of silence."

Oral worship, they may have witnessed before coming to the Institution, but it was to them a ceremony, mysterious and unmeaning. By means of signs, the simplest principles of Divine truth can be made intelligible to them on first coming to school ; the narratives and instructions of the Divine word can be clearly unfolded, and they can be taught to worship God, in the only language which is acceptable to Him—the language of the heart. As a means both of moral and intellectual improvement, the service is of incalculable value—a source of unfailing satisfaction to the deaf and dumb, and no possible equivalent could be substituted for its loss.

Occasion was taken in the Report of last year, to state somewhat at length, the distinctive features of the system of instruction which has been pursued in the Asylum, and the reasons for giving it a decided preference over other methods for the education of deaf mutes. The use which we make of the signs of the deaf and dumb, the classes whose speech it is desirable to retain and improve, the general methods and processes of instruction, and in fine, the principles upon which we base our entire course of education, are those which have commended themselves to our matured experience, and which able and observant men in this profession have decided, upon the trial of a hundred years, to be the best. The excellence of the education obtained by the mass of pupils in our American Institutions, the degree of intelligence and culture acquired, their ability to read books intelligently and with interest, their free and natural use of language, and the practical character of the training to which they are subjected, as fitting them for the responsibilities of life, are the highest possible testimony to the philosophical correctness and value of the processes by which such results are realized. We find nothing in the schools of other countries, or in other methods of instruction, that in these tangible and unquestionable tests of excellence, surpass or equal our own. These results all intelligent persons can appreciate ; of their reality and worth they are competent to judge, and to them American instructors confidently appeal as proof that the methods

they employ, are and must be based upon reason and common sense.

We hear it said however, in some quarters, that these principles are now being called in question; that the rival systems of instruction are being discussed again; that old methods are found to be imperfect and are being set aside for others which are new and far preferable. Now it should be distinctly understood, that there has arisen no new discussion of these methods whatever, *among practical teachers of the deaf and dumb*. Among the hundred and thirty gentlemen in this country who are engaged in this work, many of them men of high culture, and several of over forty years experience, there is absolutely no difference of opinion respecting the comparative value of the two systems, nor in respect to the general principles upon which deaf-mute education should be conducted. The entire agreement, on so important a subject as the best method of teaching deaf mutes, of so large a body of men, comprising certainly a fair amount of intellectual ability, men who have spent their lives in the investigation and testing of this very subject, cannot fail to be without weight in the judgment of intelligent men. These gentlemen, without exception, fully endorse the conclusion reached by Prof. Day, after his second examination of foreign Institutions, with regard to the system pursued in American schools: "the principle on which it rests is right; the processes on which it depends are in accordance with sound philosophy, and the results, those which have given our Institutions a name and rank second to none."

The statement also, which has been somewhat industriously circulated, that the subject is exciting new interest in England, and especially that public opinion is at the present time turning more favorably in the direction of articulation, we have the best of reasons for pronouncing a mistaken one. Mr. Henry W. Syle, who has recently visited the prominent

English schools, in a letter* to the New York Evening Post, gives a decided negative to such an impression. Mr. Syle is a semi-mute, a nephew of the late Henry Winter Davis. He was for a time a member of Trinity College in this city, where he took a high rank as a scholar, and more recently of the National Deaf Mute College at Washington. He is a young man of fine abilities, fully competent to form a judgment in the case, and speaks from personal knowledge.

A further and conclusive testimony to this point, is a letter to the writer, from Mr. Charles Baker, bearing date of the 20th ult. Mr. Baker is one of the oldest English instructors, Principal of the Doncaster Institution, and specially eminent as a writer on deaf-mute education. He says: "We depend on natural signs, leading on to written language, in all the instructions given to our pupils. I do not think English schools,

* TEACHING THE DUMB TO SPEAK.

RYDE, Isle of Wight, March 2, 1867.

To the Editors of the Evening Post:

A letter with this heading in the Weekly EVENING POST of February 19, states, "apparently on the authority of the Third Annual Report of the Massachusetts Board of State Charities," "that at the present time both the teaching of articulation and the plan of placing deaf mutes in the common schools appear to be gaining ground in England," as well as on the continent of Europe.

From information obtained within the last few months respecting all the institutions for the deaf in the British Isles, except three or four of the smallest, it appears that in only two is articulation considered worth teaching save to pupils who lost their hearing at a comparatively advanced age—or actually taught to more than a few of even these. The London Asylum and the Donaldson Institution at Edinburgh are both amply endowed; the former has fourteen hearing instructors on its staff of sixteen. Here alone the attempt can be made with every pupil; it is made and conscientiously continued; in the great majority of cases it fails. As Mr. Hawkins, the able Assistant Secretary of the London Institution, declares, articulation "seems to be gradually falling into neglect in our British establishments," while "in those schools where it is now taught, scarcely more than one child (naturally deaf and dumb) in thirty, attains to anything approaching success." (On the Constitution of the Deaf and Dumb, pp. 73, 74.) This was written in 1863; he used similar language last summer. . . .

Yours,

H. W. S.

as a body, have 'abandoned' articulation, but that they never adopted it, except partially, always, however, leaving the Asylum in London out of this category. I do not believe that public opinion in England is at this moment more favorable to articulation than at any previous time. *I have seen no indications of this being the case.* All the provincial Institutions here, adopt the same course as you do in the United States. Articulation is no more in favor among teachers than it has been heretofore."

The position which this Institution sustains towards the States of New England, we wish to have most distinctly understood. It is in an important respect, not a local, but a nation Institution, having derived the funds which contribute so materially to its usefulness, from the bounty of the General Government. Circumstances, however, have directed its sphere of labor mainly to New England. We have the organization, accommodations, apparatus, and teachers sufficient for the instruction of the deaf mutes found in this region of country. The number in these States of suitable age to be under a course of education, would constitute a school of the most desirable size for classification, and for efficient management. Having these facilities for the care and training of about this number, we prefer to have our buildings occupied, and desire to do as much good as possible to the largest number for whose comfort we can provide. We do not believe these pupils can be as well taught elsewhere, for in no other place in New England can they enjoy equal advantages. Such an Institution is the growth of time. It cannot be created in a day or a year. Its apparatus, modes of internal management, its skill and efficiency, are the results of matured experience. We regard it as a great loss for the pupils of New England to be deprived of these advantages. Just this, and no more, is our desire to retain and educate the deaf mutes for any or all the States referred to. It is a question of far more interest and importance to them, than to us. They can enjoy the advantages afforded by the Institution, if they desire to do so. If any state prefers to educate its child-

ren elsewhere, there is more room and a larger fund for those that remain.

The question respecting the removal of the deaf mutes of Massachusetts from the Asylum, and educating them within the State, to which reference was made in our last report, has been submitted to the consideration of a Special Committee of the Legislature. This committee have courteously afforded the Board an opportunity to explain their position, and views of the subject, and the decision they may reach in the matter, whatever it be, will be entirely acceptable to us.*

It has sometimes been suggested that the education of deaf mutes should be commenced at an earlier age than we desire to receive them into our Institution. In most American schools the time for admission is between the ages of 12 and 20. One reason, in our case, in formerly fixing upon this limit, was the fact that the States of New England have been accustomed to provide for the support of their children only for the term of six years. Being confined to this very short time, we desire to take that period during which we can most benefit the pupil, and to secure this end we need a maturity of mind, and of physical health rarely attained before the age of ten or twelve. In deference to the pressing applications of friends, though somewhat in opposition to our own judgment, the Board, a few years since, consented to receive pupils as early as eight, and we continue to do so. Our experience, however, has not been favorable to this early commencement. We cannot approve of the policy of taking children in their early and tender years, and before they have passed through the diseases of childhood, from pleasant homes, and from the

* Since the presentation of this report, the committee referred to have made a report to the Legislature, which was promptly accepted. Cordially commending the management and system of instruction pursued at the Asylum, they recommend that there be no change in the relations of the State to the Asylum, either now or in the future; that four years be added to the term of instruction; that schools be opened within the State for the instruction of children between five and ten, and finally, that the whole subject relating to the care of these deaf mutes, be removed from the supervision of the Board of State Charities, and placed under the care of the State Board of Education.

loving circle of relatives and friends, and sending them away to Institutions for instruction. If a deaf mute has a good home, it is a calamity second only to his deafness, to tear him away in his tender years from its endearing associations, and send him away among strangers to the drudgery of the school-room. No one more than the deaf mute, needs upon his character the softening, molding influences of home scenes and associations, the endearments of loving friends, the plays of childhood and the gentle yet firm discipline of family order and quietness. More than this, his constitution, already seriously weakened by the very nature of his infirmity, demands the free range of out-door life and amusements, with sports in the open air, to secure a vigorous and healthy development. The loss to the deaf mute, both mentally and physically, of such experiences in his early years, no subsequent care or attention can restore to him. Nor is his intellectual development endangered by this freedom of early life. It is mainly domestic, social and moral culture, and not intellectual, which the hearing child obtains during these years of immaturity. No judicious parent thinks of placing a child upon a course of study, of intellectual training, earlier than ten or twelve. Amusement and play is the order of the hour up to this time. If with these, some items of elementary knowledge are gathered, it is well enough, but thus early there should be little experience either to the hearing or to the deaf child, of the tedium and confinement of the school-room. If the deaf mute child has no home, or only a wretched one, and the State is willing to care for him for an indefinite period, as perhaps it ought, he might be placed in an Asylum where he could be nursed and watched over almost from his infancy, but such establishments would hardly be called, in any high sense, educational institutions practically. We do not usually find parents willing to be separated from children whom misfortune has rendered peculiarly dear, even as early as eight years of age. The trial is far less after they have reached the maturity of ten or twelve. These general views have induced us, in common with other Ameri-

can schools, to regard that as, upon the whole, the best age for commencing deaf mute education.

Mr. Gardiner Greene Hubbard, of Cambridge, in a pamphlet recently issued on the question whether the education of deaf mutes "shall be by signs or articulation," honors this Institution and its methods of instruction with a special notice. To the views brought forward by Mr. Hubbard, we regard the recent reports of the Institution, and the accumulative and accordant experience of American instructors a sufficient reply. While we do not accept the statements of the pamphlet with regard to the processes of teaching, and much less, its general conclusions, yet they are courteously presented, and we are quite willing to leave them, without special review, to the judgment of intelligent persons. We observe a number of errors in fact, and in statement, but they are errors to which any one who has not been personally conversant with the history of deaf mute instruction for the last fifty years, and who is not practically acquainted with the details would be liable. That "there are many professional teachers, who have spent the best part of their lives among the deaf and dumb, who are incompetent to carry on a discursive conversation in the sign language," (p. 10,) will be a new discovery, at least to the Principals of American schools. Mr. Hubbard roundly asserts as one of his "conclusions," (p. 35,) and it is a pretty fair specimen of the rest, "that the great object in educating the deaf mute, is to teach him the English language, and that *this object is never accomplished by the teachers of the sign language.*" Will Mr. Hubbard please tell us in what language our educated pupils write letters, converse with strangers, read books, newspapers, etc.? Is it in Japanese, or Greek, or Dutch? We had supposed it to be in the *English* language. That our pupils do acquire the ability to use the English language with great facility, beauty and accuracy, most intelligent persons are aware. Nor are the views of Mr. Hubbard specially strengthened, by comparing the intellectual progress made by Julia Brace and Laura Bridgeman. These children were taught substantially by the same methods, by appealing to the sense of touch

alone, and by the manual alphabet. The difference in their advancement arose, not as Mr. Hubbard intimates, from a difference in the methods employed, but simply from the fact that the intellect of the one is of an exceedingly low type, refusing to be aroused or stimulated, while the other, as her entire development has shown, has a mind of sparkling brilliancy, which almost of itself would burst through the barriers that seek to shut it in so closely.

The proposition upon which the whole force of Mr. Hubbard's pamphlet turns, "that words possess [to the deaf mute] a power which signs can never have, that they convey ideas to a [deaf mute] mind, which cannot be taught by signs, we deny *in toto*. Words are not to deaf mutes what they are to hearing persons. Those who are deaf from birth, have no idea whatever of sound, and none can be communicated to them, and consequently they have no association of words with sounds. Articulate words are to them only the *signs* indistinct, and fleeting, made by the positions of the vocal organs. In their whole power of meaning, association or suggestion, they are, and can be nothing more, and as a medium of communication, the choice is between these *signs*, and those made by the fingers and arms. In the distinctness of the two, there is no comparison, and the same may be remarked of the ease with which they can be understood. Deaf mutes learn the meaning of words, in the first instance, not by inspiration, not by intuition, not by articulation, but by *signs* of some sort, and they are shut up to this necessity. Those therefore who propose to conduct the education of deaf mutes from beginning to end without signs, (and we may add, without pantomime, for only such signs are significant), either do not understand what they are talking about, or to succeed, must call to their aid a power which has not yet been given to man.

Mr. Hubbard, however, finds convincing proof of the superior excellence of the views he advocates, in an exercise which he witnessed in our school during the last winter. We are not a little surprised to perceive that he comprehends so imperfectly the nature of the exercise in which he seems to

have taken so much interest. The circumstances were as follows: During a visit of the Legislative Committee of Massachusetts to the Asylum in the month of February, a paragraph was proposed by the Chairman, to be given to the pupils by signs, and to be reproduced by them on their slates in written language. The paragraph was a peculiar one, embracing different incidents of time and place, proper names, and several unfamiliar words, and idiomatic expressions. Now, precisely *what* was required of these children? It is confessedly a severe trial to a classical student, to translate correctly, without previous examination, a difficult paragraph in a foreign language, into English, even with the aid of a dictionary. Take away the dictionary and give him the printed page, require him to translate it at sight, and you increase the difficulty. Take away, now, the page itself, and simply read over to him the sentences, and you have a trial which only the rarest scholarship can meet successfully. But more severe even than this was the task given the pupils, for the student has a known construction, the analogies of a written language, and the sound of the words upon which to fix his memory, in order to produce his translation, while the pupil had only the barren idea, given rapidly to the *eye*, without any language or construction to aid him. Under these requirements and circumstances, considering the character of the paragraph, and premising that half of the class, having recently joined it, had been but a short time under its training, that it was simply an *exercise*, neither teacher or pupils having an intimation that it was a *test* as to time or in any other particular, we think the sentences were pretty fairly rendered. The general idea was caught, while there were errors in the accidents of time and place, &c. The same paragraph was given, a few days afterwards, to Roscoe Green, an articulating pupil at Chelmsford. Green is a bright boy, eighteen years of age, who lost his hearing at seven, and can speak with perfect fluency and distinctness. With this free use of speech, Green has been taught to read with facility on the lips. The words were enunciated by his teacher slowly and distinctly, several being spoken more than once, and one

word four times ; and he soon wrote the paragraph with almost entire accuracy. The exercise, in the case of Green, was simply repeating the words from the lips of his teacher. As he is an intelligent boy, he probably understood their meaning, though his ability to repeat them was no proof of this fact. In the case of the pupils, it was one of the most difficult mental exercises to which a person can be subjected, yet one which has been a thousand times tried with our pupils, and executed with perfect success. Mr. Hubbard regards the two exercises as parallel, and the results, as an example of the comparative value of instruction by signs, and by articulation.

A careful examination of the annual reports of the Institution for the fifty years that are past, will clearly show the general principles upon which it ever has been, and still is conducted. These reports have been written by different gentlemen, under the varying phases which their work presented as years have passed on. While the writers may have entertained peculiar views on minor points, as modified by individual observation and experience, and while, in the details of instruction, new methods, new text-books, and every expedient which a thoughtful ingenuity could suggest that promised to advance the great end sought—the mental and moral development and improvement of the deaf and dumb—have been freely adopted, yet the fundamental principles which have directed all these efforts have remained unchanged. These principles have been so often misapprehended or misstated, that it may be proper, briefly and distinctly, to indicate them.

1. Semi-mutes, comprising two classes—those who still retain some ability to distinguish articulate sounds,* and those who lost their hearing after they had learned to speak—may be taught to communicate with others by speech. We have

* A deaf son of Mr. Jonathan Whipple, of Ledyard, Conn., who has attracted some attention from his ability to speak, is one of this class. The Rev. W. W. Turner, former Principal of the Asylum, who has been familiar with the case for many years, has kindly given his views respecting it. (See Appendix VI.)

always maintained that children who lost their hearing at the age of five or six may retain their speech, with care and practice on the part of their friends. This should always be done, unless sufficient reasons make it undesirable.

2. There are cases of children congenitally deaf, who, from peculiar flexibility of the vocal organs, or special aptness, may be taught to articulate with considerable success. Such cases are rare, and seldom repay the great labor indispensable to secure any valuable result. Where the friends have wealth and leisure, such instruction may be added, rather, however, as an accomplishment, than as the most effective and satisfactory method for mental development and education.

3. The great mass of deaf mutes, comprising more than nine-tenths of the whole number, can be satisfactorily taught only by the use, in the first instance, of their own natural language of signs; while, by its use, their minds can be enlightened, they can be taught written language, and restored to intercourse with their friends and society. It is an invariable practice as soon as a pupil becomes acquainted with the forms of language, to require him to use it. While signs need be no detriment in learning language, but an important aid thereto, for stimulating the mind, and for the rapid communication of ideas, they are of immense advantage, and, for social religious worship, indispensable. Graceful, expressive and beautiful, and aptly styled the "poetry of motion," capable of representing all shades of emotion and thought, recognised and used in their suggestive forms by the most savage and by the most cultivated men, their value to the deaf mute cannot be estimated, nor their use prevented, either by brilliant theories or the most stringent interdiction.

4. The gathering of deaf-mute children into schools of suitable size, under proper supervision, while desirable in point of economy, is of great benefit to them in conducting their education. It stimulates their minds, improves their manners, cultivates their social feelings, gives them habits of order, obedience and deference to the comfort of others, and serves to prepare them for the duties of active life. No private care or culture can supply the advantages which deaf mutes gain by such association and discipline.

We have been in the practice of publishing, once in ten years, a catalogue of all the deaf mutes who have been received into the Institution as pupils, noting with regard to each, the date of admission, cause of deafness, deaf-mute relatives, time under instruction, and other particulars of interest, and also any facts respecting their occupation and welfare which may have come to our notice since their graduation. Such a catalogue is appended to the present Report.

May the same kind Providence watch over and direct the future course of the Institution, that has been so manifest during the now completed half century of its history.

COLLINS STONE,

Principal.

May 11, 1867.

REPORT OF THE PHYSICIAN.

The year just closed has been one of unusual health among the pupils at the Asylum.

There has been no epidemic disease ; only occasional illness of an acute character, which, with a single exception, has been in no case severe or protracted. Indeed, the time lost by indisposition has probably been less than in any previous year. A single accident, the breaking of the principal bone of the leg, has occurred.

The school and sitting-rooms, work-shops and dormitories, in one or other of which the pupils pass the greater part of their time when in-doors, are all spacious, well-lighted and ventilated, and the temperature maintained during the colder portion of the year at a proper standard.

Daily exercise at suitable intervals and for a sufficient time is one of the requirements of the Institution, and no one is permitted to omit this, more than any other of the prescribed duties of the course.

The dietary is at all times wholesome, sufficiently varied and abundant, and proper attention is given to the preparation of food, a circumstance especially affecting the health and working capacity of the children.

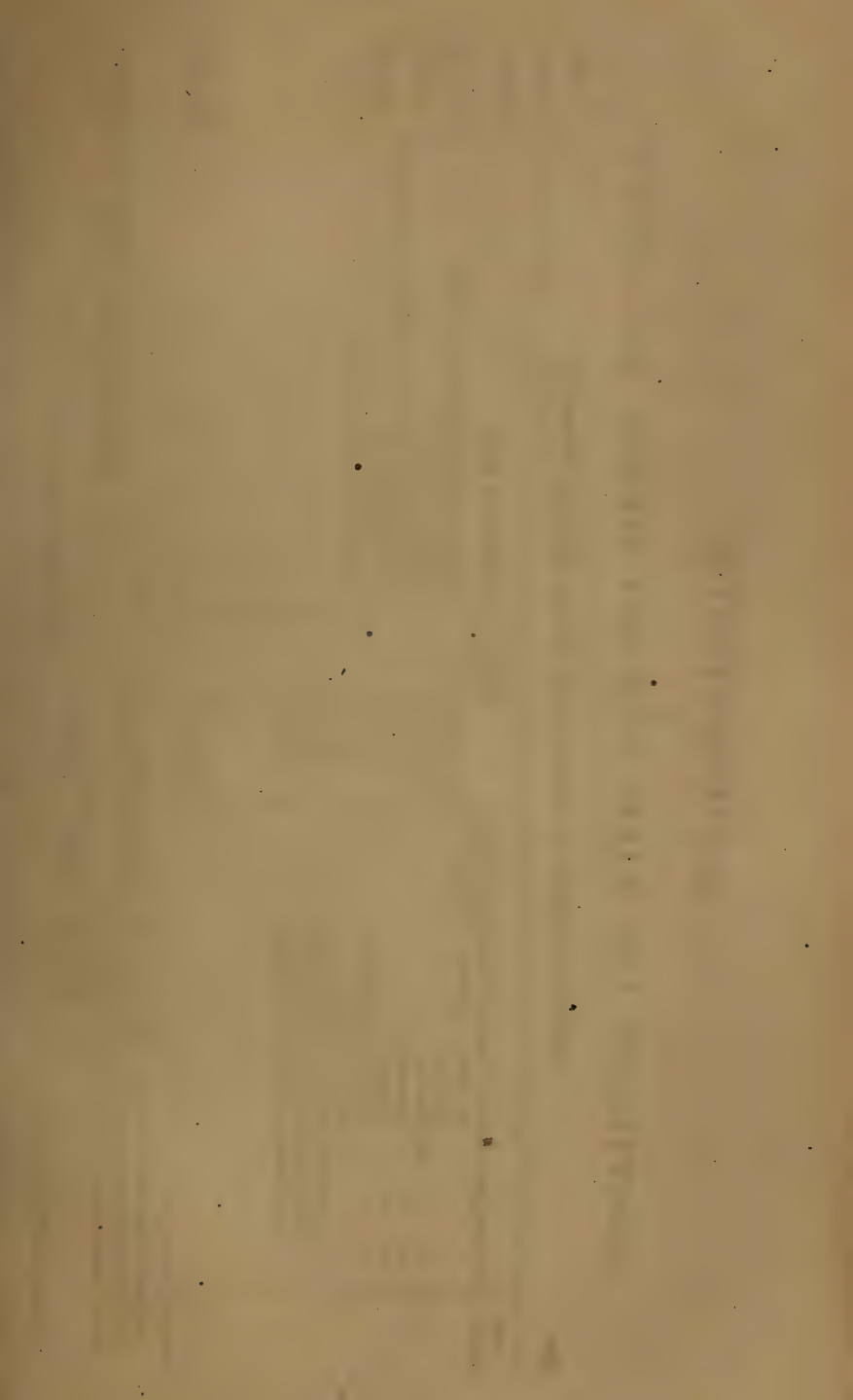
The apprehended presence of cholera led, here as elsewhere, to the exercise of all those hygienic precautions which science and experience have taught to be serviceable, though no essential change or improvement was made in these respects,

except with regard to the drainage of the Institution, which is now effectively connected with a public sewer recently built, an improvement which, so far as this highly important matter is concerned, leaves nothing to be desired.

By means of the foregoing and other agencies faithfully and perseveringly applied, is due, in no small degree, the interesting fact, that no case of typhoid or other form of continued fever has occurred here during the past year, and that so little disease of any description has required the care of a physician.

E. K. HUNT, M. D.

HARTFORD, May 1, 1867.



APPENDIX.

I.

ABSTRACT OF THE TREASURER'S ACCOUNT.

[illegible]

Examined and found correct. We have, also, this day examined the vouchers for the securities owned by the American Asylum, as per Inventory of the Treasurer, and find them to agree with the same.

ERASTUS COLLINS, } Auditors,
JONA. B. BUNCE, }

HARTFORD, May 8, 1867.

ROLAND MATHER, Treasurer.

HARTFORD, April 1, 1867.

II. STATEMENT

OF THE FUND OF AMERICAN ASYLUM.

Invested in Bank Stocks in Connecticut,	-	\$94,100.00
“ on Bond and Mortgage of Real Estate,		59,000.00
“ in Railroad Bonds,	- - -	23,900.00
“ in United States Bonds, .	- -	30,000.00
Loan to Estate of Abijah Blodget,	- -	345.08
Real Estate in Hartford,	- - -	82,522.88
Furniture in the Institution,	- - -	5,390.00
Cash on hand,	- - -	80.27
		<hr/>
		\$295,338.23

HARTFORD, April 1, 1867.

III. ABSTRACT OF

DR.	<i>American Asylum in account with</i>				
To Butter,	-	-	-	-	\$2,887.23
“ Cakes and Crackers,	-	-	-	-	26.63
“ Eggs,	-	-	-	-	2.40
“ Flour,	-	-	-	-	1,081.68
“ Fuel—Wood,	-	-	-	-	120.26
“ “ Hard Coal,	-	-	-	-	2,487.84
“ “ Charcoal,	-	-	-	-	429.50
“ Furniture,	-	-	-	-	1,148.72
“ Groceries,	-	-	-	-	1,951.54
“ Hay and Straw,	-	-	-	-	270.73
“ Light and Gas Bill,	-	-	-	-	819.54
“ Live Stock,	-	-	-	-	400.00
“ Meal,	-	-	-	-	11.00
“ Meat, Fish and Fowl,	-	-	-	-	4,170.86
“ Medicine,	-	-	-	-	111.75
“ Miscellaneous,	-	-	-	-	790.80
“ Provender and Oats,	-	-	-	-	586.78
“ Pupils,	-	-	-	-	1,042.86
“ Repairs and Improvements,	-	-	-	-	1,981.56
“ Rice and Corn Starch,	-	-	-	-	68.59
“ Schools and Postage,	-	-	-	-	290.48
“ Shops—Cabinet,	-	-	-	-	1,627.49
“ “ Shoe,	-	-	-	-	2,057.52
“ “ Tailor,	-	-	-	-	581.30
“ Tools and Blacksmithing,	-	-	-	-	96.64
“ Vegetables and Fruit,	-	-	-	-	625.31
“ Wages,	-	-	-	-	3,026.19
“ Washing and Soap,	-	-	-	-	651.07
“ Water Works,	-	-	-	-	127.80
“ Yeast,	-	-	-	-	237.95
Balance to new account,	-	-	-	-	176.59
					<hr/> \$32,888.61

CURRENT EXPENSES.

Henry Kennedy, for the year ending April 1, 1867. CR.

By Cash from Treasurer,	-	-	-	\$26,000.00
" " State of Maine,	-	-	-	450.00
" " " Vermont,	-	-	-	143.51
" " " Rhode Island,	-	-	-	44.03
" " " Connecticut,	-	-	-	245.39
" " " Massachusetts,	-	-	-	895.62
" " " New Jersey,	-	-	-	44.22
" " Pupils,	-	-	-	1,457.42
" " Cabinet Shop,	-	-	-	174.14
" " Shoe Shop,	-	-	-	252.17
" " Tailor Shop,	-	-	-	25.31
" " Miscellaneous,	-	-	-	2,571.56
" Balance from old account,	-	-	-	585.24
				<hr/>
				\$32,888.61

HENRY KENNEDY, Steward.

AMERICAN ASYLUM, April 1, 1867.

IV. PAPERS, PERIODICALS, &c.

THE FOLLOWING PAPERS HAVE BEEN SENT TO THE PUPILS GRATUITOUSLY DURING THE PAST YEAR.

Name.		Editors and Publishers.	Where Published.
Concord Monitor,	Daily,	Cogswell & Sturtevant,	Concord, N. H.
Hartford Courant,	"	Hawley, Goodrich & Co.,	Hartford, Conn.
Hartford Post,	"	G. S. Hubbard,	" "
Hartford Press,	"	Hawley, Goodrich & Co.,	" "
Hartford Times,	"	Burr Brothers,	" "
Ægis and Transcript,	Weekly,	Caleb A. Wall,	Worcester, Mass.
American Traveler,	"	Worthington, Flanders & Co.,	Boston, Mass.
Anamosa Eureka,	"	Edmund Booth,	Anamosa, Iowa.
Argus and Patriot,	"	Hiram Atkins,	Montpelier, Vt.
Boston Advertiser,	"	Dunbar, Waters & Co.,	Boston, Mass.
Boston Journal,	"	Charles O. Rogers,	" "
Boston Recorder,	"	Revs. E. P. Marvin, J. T. Tucker,	" "
Boston Transcript,	"	Henry W. Dutton & Son,	" "
Christian Mirror,	"	Charles A. Lord,	Portland, Me.
Christian Secretary,	"	E. Cushman,	Hartford, Conn.
Christian Watchman & Reflector,	"	Ford, Olmsted & Co.,	Boston, Mass.
Columbian Register,	"	Osborn & Baldwin,	New Haven, Conn.
Congregationalist,	"	Galen, James & Co.,	Boston, Mass.
Connecticut Courant,	"	Hawley, Goodrich & Co.,	Hartford, Conn.
Connecticut Herald & Journal,	"	Carrington, Hotchkiss & Co.,	New Haven, Ct.
Connecticut Press,	"	J. R. Hawley & Co.,	Hartford, Conn.
Deaf Mute Casket,	"	W. I. Palmer,	Raleigh, N. C.
Eastern Argus,	"	John M. Adams & Co.,	Portland, Me.
Gardiner Home Journal,	"	H. K. Morrell,	Hallowell, Me.
Hallowell Gazette,	"	Charles E. Nash,	" "
Independent Democrat,	"	Independent Press Association,	Concord, N. H.
Inquirer and Mirror,	"	Hussey & Robinson,	Nantucket, Mass.
Kennebec Journal,	"	Stevens & Sayward,	Augusta, Me.
Maine Farmer,	"	True & Boardman,	" "
Maine State Press,	"	N. A. Foster & Co.,	Portland, Me.
Massachusetts Spy,	"	J. D. Baldwin & Co.,	Worcester, Mass.
Meriden Recorder,	"	Luther J. Riggs,	Meriden, Conn.
Mirror and Farmer,	"	John B. Clark,	Manchester, N. H.
Natick Times,	"	Washington Clapp,	Natick, Mass.
N. Hampshire Patriot & Gazette,	"	William Butterfield,	Concord, N. H.
New Hampshire Statesman,	"	McFarland & Jenks,	" "
New Hampshire Telegraph,	"	Dearborn & Berry,	Nashua, "
New Haven Palladium,	"	F. W. J. Sizer & Co.,	New Haven, Conn.
New London Chronicle,	"	Samuel Cox,	New London, Conn.
New London Democrat,	"	D. S. Ruddock,	" "
New York Evangelist,	"	Field & Craighead,	New York, N. Y.
New York Spectator,	"	"	" "
New York State Radii,	"	Levi S. Backus,	Canajoharie, "
Northampton Free Press,	S-Weekly,	Albert R. Parsons,	Northampton, Mass.
Norwich Aurora,	"	John W. Stedman,	Norwich, Conn.
Norwich Courier,	"	Bulletin Association,	" "
Palmer Journal,	"	Gordon M. Fisk & Co.,	Palmer, Mass.
Phrenological Journal,	Monthly,	Fowler & Wells,	New York City.
Portland Advertiser,	Weekly,	Smith & Wiltham,	Portland, Me.
Portland Transcript,	"	Elwell, Pickard & Co.,	" "
Providence Journal,	"	Knowles, Anthony & Danielson,	Providence, R. I.
Religious Herald,	"	D. B. Moseley,	Hartford, Conn.
Republican Standard,	"	John D. Candee,	Bridgeport, "
Union Democrat,	"	Campbell & Hanscom,	Manchester, N. H.
Vermont Christian Messenger,	"	C. W. Willard,	Montpelier, Vt.
Vt. Watchman & State Journal,	"	E. P. Walton,	" "
Worcester West Chronicle,	"	William Waterman,	Athol Depot, Mass.
Worcester Palladium,	"	J. S. C. Knowlton,	Worcester, Mass.
Zion's Herald,	"	Haven & Rand,	Boston, Mass.

We are also indebted to Hon. L. S. Foster, and to Hon. H. C. Deming, for valuable Congressional Documents.

The Presidents and Superintendents of the following Railroads will please accept our thanks for special favors shown to the pupils of the Institution during the year :

Hartford, New Haven & Springfield.

Hartford, Providence & Fishkill.

Western Mass.

Boston & Worcester.

Worcester & Nashua.

Concord, Manchester & Lawrence.

Connecticut River.

Connecticut & Passumpsic.

Vermont Central.

COLLINS STONE, *Principal*.

HARTFORD, May 11, 1867.

V.

LIST OF PUPILS

IN THE SCHOOL WITHIN THE YEAR ENDING ON THE 11TH OF MAY, 1867.

MALES.

Name.	Residence.	Admission.
Abbott, John.....	Sidney, Me.,	Sept., 1865
Abbott, William W.....	Northumberland, N. H.	Sept., 1861
Acheson, Charles.....	West Randolph, Mass.,	Sept., 1864
Acheson, George W.....	West Randolph, Mass.,	Sept., 1864
Aldrich, Erwin E.....	Smithfield, Rhode Island,....	Sept., 1864
Allen, Jonas R.....	Hardwick, Mass.,	Sept., 1864
Bailey, Arthur E.....	Poland, Me.,	Sept., 1866
Baldwin, Charles F.....	Litchfield, Conn.,	Sept., 1864
Barrett, William S.....	Plymouth, Mass.,	Sept., 1865
Bastinella, Oliver.....	Pittsfield, Mass.,	Sept., 1865
Bird, William L.....	Naugatuck, Conn.,	Sept., 1858
Blakeley, Harvey H.....	Roxbury, Conn.,	Sept., 1859
Blood, Charles H.....	Fitchburgh, Mass.,	Sept., 1859
Bond, Thomas S.....	Hartford, Conn.,	Sept., 1860
Bowden, John.....	Marblehead, Mass.,	Sept., 1861
Boyington, George W.....	Prentiss, Maine,	Nov., 1860
Branch, Degrand D. L.....	Hartford, Conn.,	Sept., 1866
Buck, Cyrus F.....	Enfield, Maine,	Sept., 1860
Butler, John.....	East Boston, Mass.,	Sept., 1863
Carter, William T.....	Blackstone, Mass.,	Oct., 1866
Cary, Daniel W.....	Gardiner, Maine,	Sept., 1860
Chapman, Albert W.....	Cambridgeport, Mass.,	Sept., 1865
Chapman, Henry A.....	Salem, Mass.,	Sept., 1859
Clark, John.....	Bridgewater, Mass.,	Sept., 1865
Conley, James.....	Newport, R. I.,	Oct., 1861
Connors, John J.....	Mansfield, Mass.,	Sept., 1865
Cook, Thomas.....	Portland, Me.,	Sept., 1865
Coolidge, Orrin G.....	Andover, Vt.,	Sept., 1860
Coughlin, William.....	Fitchburgh, Mass.,	Sept., 1862

Name.	Residence.	Admission.
Crandall, William F.....	Newport, R. I.,	Sept., 1860
Cronan, Stephen	Fitchburgh, Mass.,	Sept., 1862
Cross, Samuel S.	Beverly, Mass.,	Sept., 1864
Culver, Samuel L.	Waterville, Conn.,	Sept., 1866
Cummings, Daniel	Greenville, Conn.,	Sept., 1864
Cutter, George F.....	Irasburgh, Vt.,	Sept., 1865
Damon, Frank C.....	Amherst, N. H.,	Sept., 1861
Day, Myron W.	South Royalston, Mass.,	Sept., 1864
Derby, Ira H.....	South Weymouth, Mass.,	Sept., 1861
Dickson, Charles A. S.....	Chelsea, Mass.,	Sept., 1859
Dougherty, Charles	Hartford, Conn.,	Sept., 1863
Drew, Frank H.....	Boston, Mass.,	Sept., 1865
Drown, Carlos	Brownington, Vt.,	Sept., 1861
Duran, Edward	South Boston, Mass.,	Sept., 1865
Duran, Thomas	South Boston, Mass.,	Sept., 1865
Ellis, Manford	Belgrade, Maine,	Sept., 1864
Erbe, Hermann	Southington, Conn.,	Sept., 1865
Evans, Oscar H.....	South Royalston, Mass.,	Sept., 1861
Fahy, Thomas	Pittsfield, Mass.,	Sept., 1862
Ferris, John	Waitsfield, Vermont,	Dec., 1862
Fifield, Oscar W.....	Deer Isle, Maine,	Nov., 1862
Fish, Charles	Danby, Vt.,	Sept., 1865
Fitch, Henry H.	Preston, Conn.,	Sept., 1860
Freallick, James F.....	Provincetown, Mass.,	Sept., 1865
Frisbee, Edward W.	Charleston, Mass.,	Sept., 1866
Frost, Edwin F.....	Boston, Mass.,	Sept., 1861
Gale, Arthur F.....	Charlton, Mass.,	Sept., 1863
Gambol, John	South Boston, Mass.,	Oct., 1864
Gardner, William M.	Hardwick, Mass.,	Sept., 1864
Graham, Samuel	Newark, N. J.,	Sept., 1866
Greene, Samuel T.....	N. Waterford, Maine,	Sept., 1855
Hadley, James	Waltham, Mass.,	Sept., 1859
Halsey, Waldron H.....	Newark, N. J.,	Nov., 1863
Hanson, Joseph W.....	Barrington, N. H.,	Oct., 1860
Harris, Alvah H.....	Neponset, Mass.,	Oct., 1863
Hasty, Albert J.	Winslow, Maine,	Sept., 1861
Hawley, Levi R.....	North Amherst, Mass.,	Sept., 1865
Hawley, Lewis N.....	North Amherst, Mass.,	Sept., 1865
Hayden, Othello D.....	Stoughton, Mass.,	Sept., 1863

Name.	Residence.	Admission.
Helfpenny, Martin	Waterbury, Conn.,	Sept., 1864
Herrick, Caleb H.	Haverhill, Mass.,	Sept., 1859
Hill, Willie L.	Athol Depot, Mass.,	Sept., 1864
Houghton, Louis A.	Springfield, Mass.,	Sept., 1857
Jellison, Simon	Monroe, Me.,	Sept., 1865
Johnson, George D.	Gill, Mass.,	Sept., 1862
Josselyn, Andrew P.	East Foxboro, Mass.,	Sept., 1863
Kendall, Phillip	Whitefield, Me.,	Sept., 1865
King, James H.	Middletown Point, N. J.,	Sept., 1865
Ladd, Amos A.	East Haddam, Conn.,	Sept., 1866
Ladue, Edward	St. Albans, Vermont,	Sept., 1864
Lally, John	South Boston, Mass.,	Sept., 1866
Laplant, Peter	West Milton, Vt.,	Nov., 1866
Leary, Matthew	Boston, Mass.,	Sept., 1863
Mackintosh, George	Canton, Mass.,	Sept., 1864
Marston, Westley N.	Greenland, N. H.,	Sept., 1864
Martin, Charles H.	Salem, Mass.,	Sept., 1863
Mayhew, Jared	Chilmark, Mass.,	Sept., 1864
Mayo, Hawes	Monroe, Maine,	Sept., 1865
McCarty, John	Andover, Mass.,	Sept., 1865
McDonnell, John	West Stockbridge, Mass.,	Sept., 1865
McGirr, Francis	East Cambridge, Mass.,	Sept., 1863
McKinney, Wm. J.	Alleghany City, Penn.,	Sept., 1865
McMaster, Hugh H. B.	Pittsburgh, Penn.,	Sept., 1864
McMechen, James H.	Wheeling, West Virginia,	Aug., 1865
Meagher, Michael	Waterbury, Conn.,	Sept., 1865
Miller, George	Providence, R. I.,	Sept., 1861
Morrell, Leland	Cornish, Me.,	Sept., 1865
Moseley, Joseph A.	Pomfret, Conn.,	Sept., 1862
Moulton, Thomas	Buxton Center, Me.,	Sept., 1864
Muth, John	Hartford, Conn.,	Sept., 1865
Negus, Edward R.	Salisbury, Conn.,	Sept., 1866
Nelson, James	Tewksbury, Mass.,	Sept., 1864
Newhall, George A.	Melrose, Mass.,	Sept., 1858
O'Harra, John	Milford, Mass.,	Sept., 1860
O'Neil, Michael	Charlestown, Mass.,	Sept., 1866
Ould, Edward C.	Derby, Conn.,	Sept., 1861
Page, Roscoe G.	Augusta, Maine,	Sept., 1860
Patterson, Charles	Saco, Maine,	Sept., 1864

Name.	Residence.	Admission.
Peterson, Willie S. H.....	South Plymouth, Mass.,	Sept., 1862
Philbrook, Henry O.	Charlestown, Mass.,.....	Sept., 1864
Pick, William C.....	Providence, R. I.,	April, 1863
Pond, Nathan L.....	Milford, Mass.,	Sept., 1862
Porter, Wendell P.	Somerville, Mass.,	Nov., 1858
Powers, James	Boston, Mass.,	Sept., 1865
Powers, James A.....	Salem, Mass.,	Mar., 1862
Pratt, John W.	Middletown, Conn.,	Sept., 1861
Quincy, Josiah	Bridgewater, Mass.,.....	Sept., 1865
Richmond, Ephraim H....	Voluntown, Conn.,	Sept., 1865
Rideout, Charles H.	Houlton, Maine,	Sept., 1863
Roberts, Frank B.....	Boston, Mass.,	Sept., 1866
Rudolph, William.....	Boston, Mass.,	Sept., 1866
Ryan, John	Rutland, Vt.,	Sept., 1865
Sachse, Charles F.....	Waterbury, Conn.,	Sept., 1861
Sackett, Charles E.....	South Glastenbury, Conn., ..	Sept., 1865
Saul, Willie H.....	Salem, Mass.,	Sept., 1866
Scoles, William M.....	Augusta, Maine,	Sept., 1863
Seamen, Mortimer W.....	Canton, Conn.,	Sept., 1866
Sharts, Herman H.....	Hudson, N. Y.,.....	Sept., 1865
Slattery, Patrick.....	Boston, Mass.,	Sept., 1862
Small, Albert A.....	Auburn, Maine,	Sept., 1863
Small, George B.....	Hartland, Vermont,	Sept., 1865
Small, Marshall H.....	Bowdoinham, Maine,	Sept., 1860
Small, Walter R.....	Hartland, Vermont,.....	Oct., 1862
Smith, Freeman N.....	Chilmark, Mass.,	Sept., 1861
Smith, George	Springfield, Mass.,	Sept., 1864
Smith, Orlando A.....	Roxbury, Mass.,.....	Sept., 1863
Soper, Isaac N.....	Lowell, Mass.,	Sept., 1861
Sparrow, Wilber N.....	Eastham, Mass.,	Sept., 1864
Stillman, Henry D.....	Cumberland Hill, R. I.,	Oct., 1861
Stoddard, James M.....	Boston, Mass.,	Sept., 1866
Sullivan, Patrick.....	North Providence, R. I.,	Sept., 1858
Sullivan, Patrick J.....	Boston, Mass.,	Sept., 1860
Tasker, Frank C.....	Providence, R. I.,	Nov., 1860
Tuck, Lewis C.....	Beverly, Mass.,.....	Sept., 1862
Tufts, Samuel A.....	Malden, Mass.,.....	Sept., 1865
Walker, Freddie.	Norwich, Conn.,	Sept., 1864
Wardman, Samuel.....	Ballardvale, Mass.,	Sept., 1866

Name.	Residence.	Admission.
Wass, Francis N.....	Addison, Maine,	Sept., 1858
Waters, Warren L.....	Hartford, Conn.,	Sept., 1865
Watts, Francis A.....	Rockville, Conn.,	Sept., 1860
Weaver, Jonathan.....	South Woodstock, Conn.,....	Sept., 1866
Webb, Clarence A.....	Canterbury, Conn.,	Sept., 1864
Wellington, Elbridge A...	Wayland, Mass.,	Sept., 1863
Wentworth, Sylvester W..	Ipswich, Mass.,.....	Sept., 1864
Wheeler, Staunton F....	Plymouth, Vermont,	Sept., 1863
White, Henry.....	Roxbury, Mass.,	Sept., 1866
Wilkinson, John.....	West Lubec, Maine,.....	Sept., 1861
Wood, Eugene W.....	Webster, Mass.,	Sept., 1861
Young, William F.....	Boston, Mass.,	Sept., 1861

FEMALES.

Adams, Alda M.....	Charlestown, Mass.,.....	Sept., 1866
Annan, Josephine A.....	Manchester, N. H.,	Sept., 1864
Atkins, Sylvia B.....	Chatham, Mass.,	Sept., 1862
Axt, Matilda.....	New Haven, Conn.,.....	Sept., 1866
Ayshers, Mary.....	Columbus, Ga.,.....	Feb., 1867
Bailey, Martha J.....	Swansey, N. H.,	Sept., 1860
Barnard, Adda J.....	Lowell, Mass.,	Sept., 1865
Bickford, Sarah K.....	Belgrade, Maine,	Sept., 1860
Bishop, Stilla M.	East Avon, Conn.,	Sept., 1866
Bond, Julia P.....	Hartford, Conn.,	June, 1865
Bragg, Lucy A.....	South Kent, Conn.,	Sept., 1863
Brown, Emily C.....	North Stonington, Conn.,....	Sept., 1864
Brown, Susan F.....	North Dunbarton, N. H.,....	Nov., 1865
Carey, Mary.....	Boston, Mass.,	Sept., 1863
Chaffin, Abbie L.....	Worcester, Mass.,.....	Sept., 1865
Champion, Ellen J.....	Westmore, Vermont.....	Sept., 1863
Clapp, Elmina D.....	Newburgh, N. Y.,	Sept., 1860
Colley, Mary E.....	Falmouth, Maine,	Oct., 1862
Corcoran, Ellen.....	East Boston, Mass.,.....	Nov., 1865
Daley, Nancy J.....	Chester, Conn.,.....	Sept., 1865

Name.	Residence.	Admission.
Davis, Ellen M.....	Rockport, Mass.,	Sept., 1860
Derby, Olive A.....	South Weymouth, Mass.,.....	Sept., 1861
Dewsnap, Clara.....	Lakeville, Conn.,	Jan., 1863
Driscoll, Julia A.	East Boston, Mass.,.....	Nov., 1865
Dubec, Adeline.....	Orono, Maine,	Sept., 1866
Dudley, Etta T. B.....	Northampton, Mass.,	Sept., 1864
Dummer, Caroline L.....	Weld, Maine,	Sept., 1866
Dunnell, Marilla.....	Buxton Center, Maine.....	Sept., 1866
Durbrow, Carrie B.....	New York City,	Oct., 1863
Eaton, Mary E.....	East Salisbury, Mass.,	Sept., 1863
Emerson, Gertrude A....	Danby, Vermont,.....	May, 1864
Fahy, Bridget.....	Pittsfield, Mass.,	Sept., 1864
Flagg, Clarinda J.....	Natick, Mass.,	Sept., 1862
Foley, Bridget.....	Bristol, Conn.,	Sept., 1863
Foley, Mary A.....	Bristol, Conn.,	Sept., 1863
Frost, Harriet E.....	Bucksport, Maine,	Sept., 1865
Gardner, Rosa.....	Greenville, Conn.,	Sept., 1859
Gray, Leonora C.....	New Haven, Conn.,	Sept., 1864
Hall, Elizabeth.....	Portland, Maine,	Sept., 1863
Hartshorn, Anna S.....	Boston, Mass.,	Sept., 1865
Haskell, Mary E.....	Portland, Maine,	Sept., 1858
Hichens, Mary W.....	Wellfleet, Mass.,	Sept., 1861
Howe, Eldora M.....	Marlboro, Mass.,	Sept., 1861
Hull, Ida A.....	Plainville, Conn.,.....	Sept., 1864
Jenks, Matilda.....	Portsmouth, N. H.,	Sept., 1862
Knapp, Sophia A.....	Winchester, N. H.,	Sept., 1861
Lee, Mary J.....	East Longmeadow, Mass.,...	Sept., 1864
Linnehan, Mary A.....	Boston, Mass.,	Sept., 1866
Lummis, Delia A.....	Pomfret, Conn.,	Sept., 1866
Lyons, Ellen.....	Ludlow, Mass.,	Sept., 1864
Marks, Sarah C.....	Providence, R. I.,	Nov., 1863
Mason, Flora S.....	Bangor, Maine,	Sept., 1865
Mattson, Elizabeth.....	New York City,	Oct., 1865
McDonald, Catharine.....	Boston, Mass.,	Sept., 1866
McDonough, Elizabeth A.,	North Blanford, Mass.,	Oct., 1864
McKay, Mary A.....	River Point, R. I.,	Feb., 1862
Meacham, Mary O.....	Westfield, Mass.,	Sept., 1866
Meacham, Morcellia A....	Westfield, Mass.,	Sept., 1866
Merrill, Anna M.....	Lake Village, N. H.,.....	Oct., 1862

Name.	Residence.	Admission.
Merrill, Frances J.....	Skowhegan, Maine,	Sept., 1864
Milan, Catharine.....	Milford, Mass.,	Sept., 1865
Miller, Catharine W.....	Thompsonville, Conn.,	Sept., 1862
Moore, Eliza A.....	Derby, Conn.,	Sept., 1863
Moulton, Florette.....	Biddeford, Maine,	Sept., 1864
Mulachy, Mary E.....	Salem, Mass.,	Sept., 1865
Munroe, Betsey A.....	Rehoboth, Mass.,	Sept., 1862
Murphy, Mary E.....	Boston, Mass.,	Sept., 1862
Nichols, Marietta C.....	Roxbury, Mass.,	Sept., 1865
O'Brien, Mary.....	East Cambridge, Mass.,	Sept., 1865
O'Donnell, Catharine.....	Stonington, Conn.,	Sept., 1860
O'Hearn, Eliza.....	Tewksbury, Mass.,	Sept., 1864
Peltier, Ella M.....	Cambridge, Mass.,	Sept., 1863
Platt, Sarah E.....	Hinsdale, Mass.,	Sept., 1865
Proctor, Emma J.....	West Gloucester, Me.,	Sept., 1866
Putnam, Almedia M.....	Oxford, Maine,	May, 1862
Quinn, Mary A.....	Hartford, Conn.,	Sept., 1861
Richardson, Amelia A....	Mansfield, Mass.,	Oct., 1866
Richardson, Lauretta J....	Mansfield, Mass.,	Sept., 1862
Robinson, Hattie J.....	Freedom, Maine,	Sept., 1853
Rounds, Sylvia D.....	Greene, R. I.,	Sept., 1862
Scoles, Rachel A.....	Augusta, Maine,	Sept., 1864
Small, Frances E.....	Auburn, Maine,	Sept., 1863
Smith, Mary J.....	East Hartford, Conn.,	Sept., 1865
Soper, Ella J.....	Lowell, Mass.,	Sept., 1866
Spillane, Mary.....	East Boston, Mass.,	Nov., 1865
Stone, Sally E.....	Natick, Mass.,	Sept., 1865
Swett, Persis H.....	Henniker, N. H.,	Oct., 1863
Taft, Marion L.....	Worcester, Mass.,	Sept., 1864
Talcott, Lillia M.....	Bolton, Conn.,	Oct., 1866
Teele, Sarah F.....	Somerville, Mass.,	Sept., 1862
Thayer, Emeline.....	Warren, Vt.,	Nov., 1859
Tilton, Ellen L.....	Cheshire, Mass.,	Sept., 1864
Turner, Lucy M.....	South Coventry, Conn.,	Dec., 1864
Tisdale, Jennie M.....	North Bridgewater, Mass., ..	Sept., 1866
Vincent, Emma A.....	South Adams, Mass.,	Sept., 1863
Walsh, Margaret.....	Norwich, Conn.,	Sept., 1866
Wentworth, Ella J.....	Ipswich, Mass.,	Sept., 1866
West, Anna J.....	Coventry, R. I.,	Sept., 1857

Name.	Residence.	Admission.
Westgate, Abby.....	Warren, R. I.,	Sept., 1864
Wiley, Florence H.....	Lock port, N. Y.,	Sept., 1866
Williamson, Etta J.....	Rockland, Maine,	Oct., 1859
York, Melissa J.....	Gilmanton, N. H.,	Sept., 1864

SUMMARY.

	Males.	Females.	Total
Supported by Friends, - - -	10	9	19
“ Maine, - - -	22	17	39
“ New Hampshire, - - -	4	7	11
“ Vermont, - - -	11	3	14
“ Massachusetts, - - -	74	43	117
“ Rhode Island, - - -	7	4	11
“ Connecticut, - - -	27	19	46
“ New Jersey, - - -	3	—	3
	<hr/> 158	<hr/> 102	<hr/> 260
Whole number in attendance within the year, - - -			260
Greatest number at any one time, - - -			226
Average attendance during the year, - - -			224

VI.

HARTFORD, May 6th, 1867.

REV. COLLINS STONE,

Principal of the American Asylum,

DEAR SIR :—At your request, I send you the following statement of facts respecting the case of Jonathan Whipple, of Ledyard, in this State, said by Dr. Howe, in his address to the Committee of the Legislature of Massachusetts on the education of deaf-mutes, to be “an uneducated man who had taught his deaf-mute son to talk.” Dr. Howe read a letter from him to a mutual friend, in which he claims to have taught his deaf son Enoch to speak, giving an account also of his success in teaching another deaf boy, so that in 105 days from the time of commencing “he could say almost any word quite plain.” The reading of this letter recalled to my mind the fact that this same Mr. Whipple exhibited his son before the Teachers’ Association of New England, at their meeting in Hartford, more than twenty years ago. They were introduced by the Hon. Horace Mann, at that time Secretary of the Board of Education in Massachusetts, as proof that a child born deaf might be taught to articulate, to read from books orally, and from the lips of any person addressing him. Mr. Mann stated that this deaf mute had been thus taught by his father, and requested that he might have an opportunity to show the Convention that these claims were well founded. Permission was granted; when it appeared that the boy could read correctly, with a distinct enunciation, both prose and poetry, and could understand from the motion of his father’s lips whatever he chose to say to him. The gentlemen present seemed satisfied that the deaf and dumb might be made to speak, while Mr. Mann set forth the case as a conclusive proof of the superiority of teaching deaf mutes by articulation, as practiced in the schools of Germany. Although I had witnessed the performance, and was ready to give Mr. Whipple full credit for having taught his son to read and to speak so well, especially to read from his lips without audible utterance, I was not willing to regard the whole question at issue between the American and German schools as settled in favor of the latter without further investigation. That I might have an opportunity for this, I invited Mr. Whipple and his son to dine with me at the American Asylum. After showing them through the Institution, I took them to the boys’ dormitory for a view of the city. While there I inquired

of Mr. Whipple if his son could hear any. He admitted that he could hear some; and gave as evidence of the fact that he had noticed on one occasion that his boy was attracted, while sitting at the fire, by the chirping of a cricket in the hearth; and on another by the singing of a bird on an apple tree over his head. I asked Mr. W. if I might try the experiment of making his son hear my voice. He had no objection, but was doubtful as to its success. Placing my mouth within a few inches of his ear, in such a position that he could not possibly see it, and speaking slowly in a full, clear tone of voice, he comprehended perfectly several questions put to him, and gave me pertinent answers to each. This experiment was repeated in the afternoon before the Convention, when the illusion melted away; no one present any longer regarded Enoch Whipple as a legitimate deaf mute; nor did Mr. Mann from that day forward, although his views on the general subject remained the same, ever refer to this case in support of his position, so far as I have been able to ascertain. Indeed, I have not for many years heard any allusion to the efforts of Mr. Whipple until the reading of his letter by Dr. Howe last winter, as above stated.*

Before closing my communication, I would like to examine a few points involved in this controversy a little more closely.

1. Mr. Whipple admits that *all* whom he has taught with any considerable degree of success *could hear somewhat*. In regard to his son Enoch, he writes in a published letter, 'Now I don't want you to understand that he hears nothing; but I do want you to understand that he can understand a good plain-spoken person, if he hears *not a breath of noise*.' In other words he can read what such a person says from his lips, and understand it even when he does not hear his voice. How much of hearing Enoch had when a boy may be inferred from the fact stated by his father, of his hearing the chirping of a cricket and the singing of a bird. The experiment tried with him before the Teachers' Convention, when he was about seventeen years old, showed that he could hear and understand anything said to him under favorable circumstances, at that time, without seeing the lips of the speaker.

Another deaf boy whom Mr. Whipple taught, many years ago, for a few weeks, came to him, he says, "so deaf that he had not learn-

*A more particular account of this matter may be found in the Proceedings of the first Convention of American Instructors of the Deaf and Dumb, pp. 141—142. New York: 1850.

ed to talk, though he could hear as well or better than Enoch. This boy could partly speak a few names of the members of their family. I succeeded in teaching him to call off the whole alphabet in a plain manner, and to spell quite a good many words, and to speak them plain,"—"and could have taught him to talk as well as my son if the widowed mother had had the means to pay me for my trouble." This lad was afterwards (Oct., 1846,) received as a pupil at the Asylum, and recorded at the time as only partially deaf. Attention was paid to his articulation, in which he made considerable improvement. I taught him a part of the time he was with us, and could make him understand by hearing when he could not see the words spoken. I saw his brother a few weeks since, who told me that his friends usually converse with him, and he with them, orally.

"The last young man I had with me on trial," writes Mr. Whipple, "came the 4th of December, 1865, and was with me one hundred days, and when he came he was a *mute*, and when he left he could speak in a plain manner almost any word you might tell him to speak." "This young man could hear some, but not enough to learn to talk." From the few cases of deafness which have come under his notice, Mr. Whipple draws the following conclusion: "It is my candid conviction that there are but very few of the deaf who could not be taught to talk, if they were properly managed with." And again, "It certainly does seem to me that quite a large portion of the mutes could be taught language so as to be *intelligent* talkers, and I feel that *I know it*." He seems to give as one reason for this conclusion, and in close connection with the above quotation, that mutes can generally hear. "I have found but very few mutes who can hear *none*; almost all of them can hear some." "There are more of the mutes who hear *some* than we are apt to think." Now, if he means by hearing the ability to perceive sounds by the ear, then all practical teachers of the deaf and dumb know that the reverse is true. Only very few can hear the sound of the human voice, while the great majority of them cannot hear it at all.

2. The success obtained by Mr. Whipple in teaching articulation cannot be accounted for on any other supposition than that he was materially aided in his efforts by the partial hearing of those whom he taught. He discovered the deafness of his son when he was about a year old; and was thereafter satisfied "that he would never learn to talk unless there was some extra effort some way." He used no signs; nothing "in the line of *motioning* out any word, or letter, or thing; but would be very particular in *speaking* very plain, and be

sure his face was towards us." When he was inquired of at the Teachers' Convention as to *how* he taught his boy to speak a word, he replied "that he mouthed it out and shouted it out and the boy learned to speak it." Without any other instruction than such as laboring people, fully occupied with their daily avocations, were able to give, these parents succeeded in teaching their deaf son to talk almost as early as their other children. And Mr. Whipple says, "Our children were all quite young when they commenced talking." He became also "an intelligent talker, a very good reader," and can speak as naturally as hearing men generally. His father says "he can speak as well as any of us." Many children who lost their hearing entirely from five to nine years of age, after they had learned to speak well, and some of them to read, have been received as pupils at the Asylum; yet, in every instance, their speech became, after a few years, more or less defective and peculiar in consequence of their inability to hear and modulate the sound of their own voice. You will remember that the daughter of Mr. Hubbard, nine years old, who appeared before the Committee in Boston last winter, who lost her hearing at the age of five years, and had been taught by a private teacher three years, spoke so indistinctly that we were unable to comprehend the subject of the passage she read from a school book, although but a few feet from her. The same thing is true, according to the testimony of Prof. Day, Mr. Weld and Dr. Peet, with those taught in the German schools who were entirely deaf. They also represent that the most intelligent of such pupils require laborious and long-continued instruction before they can use speech freely even in colloquial conversation; while many less gifted fail altogether to make such proficiency. We cannot, however, but admire the interest and zeal manifested by Mr. Whipple in the subject; and would not withhold from him the full measure of credit to which he is entitled for what he has accomplished in his efforts to improve the condition of those partially deaf. But if he had had much experience in teaching those entirely and always deaf, it is quite certain that his views as to the feasibility and ease of making "quite a large portion of the mutes intelligent talkers" must have been very much modified.

3. It is not a little remarkable that the advocates of teaching deaf mutes articulation should differ so essentially as to the importance of special training and experience to the teachers themselves. On this subject, Dr. Howe says the teaching of deaf mutes "is regarded as a peculiar and difficult art, and yet the most difficult parts of this branch of instruction can be performed by persons who are drawn to it by an

intense zeal and interest in the matter, as well as by those persons to whom it has been the business of their lives." "It does not require any particular study to teach a deaf mute." Indeed, he cites the case of Mr. Whipple, "an uneducated man, as you will see by his letter," for the express purpose of illustrating the point of "the simplicity of this whole matter, if it can only be brought down to the comprehension of ordinary persons, who have a natural aptness to teach, and natural zeal in teaching." On the other hand, his friend, "Horace Mann, the great educator," gives his views on this point in the following words: "In teaching these children [deaf mutes] to speak, if difficult and complicated sounds are given before simple ones, some of the vocal organs will be at fault in regard either to position or motion; and if error is continued but for a short period, false habits will be acquired, which it will be almost impossible for any subsequent skill or attention to eradicate. No uninstructed person, therefore, should tamper with this subject. No one should attempt to teach the deaf and dumb to speak who has not carefully read the best treatises upon the art, or witnessed the practice of a skillful master." Mr. Sanborn advocates the trying of the experiment of teaching deaf mutes, for a time, at least, in the common schools, as recommended by Dr. Blanchet. He says, "In small schools under the care of young women, such as teach in our common schools, a considerable number of the [deaf mute] children, under eight years old, could be taught." Mr. Hubbard, while speaking of such a small school, already in operation at Chelmsford, Mass., said to the Committee, "We do not wish that you should have any great expectations with regard to what you will see at Chelmsford. At Hartford they have fifty years the start of us. They have teachers who have had a life-long experience in the art of teaching this particular class of scholars; they know how to teach better than we do, and the instruction there cannot be compared with that at Chelmsford. This is a new school; neither of the teachers had any experience in teaching deaf-mutes before they began their little school." It has generally been supposed that the more knowledge and experience a person in any profession may have acquired, the better would he be able to fulfill the responsibilities, and perform the duties of that profession.

Yours very truly,

WM. W. TURNER.

VII.

Mr. Horace Mann, in the Seventh Report of the Massachusetts State Board of Education, took occasion to say that the schools for deaf mutes in Prussia, Saxony and Holland were "decidedly superior to any in this country." It is not known that Mr. Mann ever visited an American school for the education of deaf mutes, or took pains to inform himself with regard to their method of instruction. His opinions on the subject are of no more value than those of any other gentleman with the same amount of information. That, upon a casual visit to the schools above mentioned, with a confessedly imperfect knowledge of the German language, Mr. Mann should emphatically pronounce a judgment reflecting so severely on the schools of his own country, of which he knew so little, will not add to his reputation as a man of observation or candor.

The admirable letter of Mr. Gallaudet, in reply to the remarks of the Report, exposes clearly the narrow view of the subject there presented, and although some years have elapsed since it was written, it will doubtless be read with interest.

"HARTFORD, May 13th, 1844.

"HON. HORACE MANN,

"MY DEAR SIR:—I should have replied before this to your late very kind letter, but much bodily indisposition, and a pressure of numerous duties have prevented.

"I am free to say that I deeply regret the very strong language which you use in your report, so interesting and admirable in most of its features, when you say that the schools for the deaf and dumb in Prussia, Saxony and Holland seem to you *decidedly superior* to anything in this country; because, in order to say this, as I think, understandingly, you ought to be thoroughly acquainted with the system of discipline and instruction pursued in our Asylum, and other American institutions, in its details and practical results; for how else can a fair comparison be made?

"The teaching of the deaf-mutes to articulate and to understand what is said to them, is but *one part* of their education.

"The development of the intellectual and moral faculties of deaf mutes; their intellectual and moral training; their government, by moral influence; the imparting to them moral, religious, and other

knowledge; their participating, understandingly, in the social and public devotional exercises of the Institution; the furnishing of their minds with the ideas, the facts, and that amount of knowledge, which are necessary to prepare them to understand a vast number of the *words* which must be taught them; their becoming acquainted with our social and civil institutions; with arithmetic, grammar, geography, and history; with the history, simple doctrines, and the precepts of the Bible; with their duties to God, to their fellow-men, and themselves; and their acquiring a trade, or some means of gaining a livelihood; and especially their being taught to *write* the English language correctly and to *read books intelligently*, (one of the highest solaces and means of constantly progressive self-culture, which deaf-mutes can enjoy,) all these are essential parts of their education.

"They may have them without being able to articulate, and understand what is said to them, or some of them may be able to do the latter, and yet be deficient in the former.

"In how many cases the two can be combined, and with what degree of success, is a point that needs the most careful examination.

"The complete education of deaf-mutes, I am decided in saying, cannot be successfully carried on, especially during the early stages of their instruction, without the use of that very distinct, intelligible, copious, and beautiful language of *natural signs*, which nature has prompted them in their separate and insulated state, originally to invent, in its more simple elements, and which science and art have advanced to a high degree of perfection. Without this language of natural signs, the teacher can have, at first, no ready and adequate means of free communication with his pupils, (by this language, he has this free communication long, long before he can have it by words); he cannot get hold of their peculiarities of mind; cannot give them instructive illustrations, by practical examples, of the full meaning of very many words; cannot do much to expand their opening faculties; and cannot understand their difficulties, and *the questions* they may wish to propose to him, respecting these difficulties; a most essential part of the proper instruction of any child. How far the essential parts of a complete education, which I have above specified, must be retarded, sacrificed, or neglected, in the five, or even six years allowed by the Legislatures of the States, for the actual residence of the deaf and dumb at our public institutions, in order to go through with the long, laborious, and to them, certainly, in many cases, as experience has abundantly shown, very tedious and irksome process of learning to articulate, and to understand what is said to them; how far this pro-

cess is successful, to the extent of which you so unhesitatingly speak, when as we know the whole subject has, more than once, undergone the severest scrutiny in Europe, by the most sagacious individuals (philosophers, such as Degerando, and Dugald Stewart,* and accomplished teachers of the deaf and dumb among the number,) *who have come to very different results, with regard to the facts in the case, from yours*; and how far the English tongue may, as you suggest, present intrinsic difficulties in the matter—these are questions, when we come to the fair investigation of this complicated subject, and wish to balance all the advantages and disadvantages, to answer which demands much practical experience in the instruction of deaf-mutes, and a most thorough and critical investigation of the whole ground covered.

“If you come to Hartford, do let me know it, that I may once more have the pleasure of enjoying your society, and talking over with you, both deaf-mute and other matters of common interest.

“Yours truly,

“T. H. GALLAUDET.”

*Dugald Stewart, in his writings, who had the school of Braidwood, (one of the most accomplished teachers of articulation to deaf-mutes that ever lived,) in Edinburgh, under his familiar inspection, goes strong against articulation.

OFFICERS OF THE AMERICAN ASYLUM,

From its organization to the present time;

April, 1816—May, 1867.

PRESIDENTS.

	<i>Elected.</i>	<i>Retired.</i>
*JOHN COTTON SMITH,	1816,	1822.
*WILLIAM PHILLIPS,	1822,	1823.
*DANIEL WADSWORTH,	1823,	1824.
*NATHANIEL TERRY,	1824,	1840.
*THOMAS S. WILLIAMS,	1840,	1861.
WILLIAM W. ELLSWORTH,	1861.	

VICE PRESIDENTS FOR LIFE BY SUBSCRIPTION.

*WILLIAM PHILLIPS,	1817.	*STEPHEN VAN RENSSELAER,	1817.
*WILLIAM GRAY,	1817.	*ELIAS BOUDINOT,	1817.
*ISRAEL THORNDIKE,	1817.	*ROBERT OLIVER,	1817.
*WILLIAM PARSONS,	1817.	*JOHN CALDWELL,	1819.
*SAMUEL APPLETON,	1817.	*CHAUNCEY DEMING,	1819.
*DANIEL WADSWORTH,	1817.	*CHARLES SIGOURNEY,	1819.

VICE PRESIDENTS BY ELECTION.

	<i>Elec'd.</i>	<i>Ret'd.</i>		<i>Elec'd.</i>	<i>Ret'd.</i>
*JOHN CALDWELL,	1816,	1819.	*DAVID WATKINSON,	1831,	1857.
*MASON F. COGSWELL,	1816,	1830.	*JAMES WARD,	1842,	1856.
*NATHANIEL TERRY,	1816,	1824.	*CHARLES SEYMOUR,	1842,	1852.
*DANIEL WADSWORTH,	1816,	1817.	JAMES B. HOSMER,	1842,	
*TIMOTHY DWIGHT,	1816,	1817.	BARZILLAI HUDSON,	1844.	
*CHARLES SIGOURNEY,	1816,	1819.	*SETH TERRY,	1852,	1865.
*DAVID PORTER,	1816,	1828.	CHARLES GOODWIN,	1855.	
*JOSEPH BATTEL,	1816,	1842.	*JAMES H. WELLS,	1857,	1858.
*ABEL FLINT,	1817,	1821.	JOHN BEACH,	1857.	
*WARD WOODBRIDGE,	1818,	1856.	*AMOS M. COLLINS,	1857,	1858.
*HENRY HUDSON,	1819,	1843.	*DAVID F. ROBINSON,	1858,	1861.
*BENONI UPSON,	1819,	1825.	*FRANCIS PARSONS,	1858,	1860.
*THOMAS DAY,	1821,	1855.	CALVIN DAY,	1861.	
*SAMUEL TUDOR,	1824.	1861.	HENRY A. PERKINS,	1862.	
*WILLIAM ELY,	1826,	1842.	SAMUEL S. WARD,	1862.	
*STEPHEN WHITNEY,	1828,	1842.	ROLAND MATHER,	1866.	

DIRECTORS FOR LIFE BY SUBSCRIPTION.

*Joseph Battel,	1818.	*David Porter,	1818.
*P. C. Brooks,	1818.	*P. Remsen,	1818.
*Daniel Buck,	1818.	*Andrew Ritchie,	1818.
*John Caldwell,	1818.	*Samuel Salisbury,	1818.
*Mason F. Cogswell,	1818.	*David Sears,	1818.
*John B. Coles,	1818.	*Charles Sigourney,	1818.
*Joseph Coolidge,	1818.	*John Cotton Smith,	1818.
*Chauncey Deming,	1818.	*Nathaniel Terry,	1818.
*Simeon Forester,	1818.	*Ward Woodbridge,	1818.
*Henry Hudson,	1818.	*S. V. S. Wilder,	1818.
*William H. Imlay,	1818.	*John Jacob Astor,	1819.
*James Kane,	1818.	*Christopher Colt,	1819.
*Eliphalet Kimball,	1818.	*Henry W. Delavan,	1819.
*David McKinney,	1818.	*Samuel Elliot, Jr.,	1819.
*Israel Munson,	1818.	*Daniel D. Rogers,	1819.
*H. Overing,	1818.	*Luther Scarborough,	1819.
*Samuel Parkman,	1818.	*Eliphalet Terry,	1819.
*Daniel P. Parker,	1818.	*Benoni Upson,	1819.
*James Perkins,	1818.	*Stephen Whitney,	1819.
*Joseph Peabody,	1818.	*Thomas H. Gallaudet,	1820.
*B. Pickman, Jr.,	1818.	*Eliphalet Averill,	1821.

DIRECTORS BY ELECTION.

	<i>Elected.</i>	<i>Retired.</i>
*Joseph Rogers,	1816,	1817.
*Thomas S. Williams,	1816 and 1830,	1817 and 1840.
*Samuel Tudor,	1816,	1824.
*William Watson,	1816 and 1820,	1817 and 1837.
*John Butler,	1816 and 1824,	1817 and 1839.
*Jared Scarborough,	1816,	1817.
*Joseph Trumbull,	1816 and 1821,	1818 and 1822.
*Henry Hudson,	1816,	1818.
*Daniel Buck,	1816,	1818.
James B. Hosmer,	1816 and 1824,	1817 and 1842.
*Ward Woodbridge,	1817,	1818.
*Jonathan Law,	1817 and 1840,	1818 and 1842.
*John Russ,	1817,	1830.
*William Ely,	1817,	1826.
*Christopher Colt,	1817,	1819.
*David Watkinson,	1817,	1831.
William W. Ellsworth,	1818,	1820.
*James Ward,	1818,	1842.
*Michael Olcott,	1818,	1824.
*Seth Terry,	1818 and 1830,	1820 and 1852.
*Eliphalet Averill,	1818,	1820.
*Thomas Day,	1819,	1821.

	<i>Elected.</i>	<i>Retired.</i>
Aristarchus Champion,	1820,	1822.
Thomas C. Perkins,	1820 and 1844,	1824 and 1850.
*Charles Seymour,	1822,	1842.
*Roswell Bartholomew,	1822,	1830.
*Daniel P. Hopkins,	1824,	1830.
Barzillai Hudson,	1826,	1844.
John Beach,	1830 and 1841,	1840 and 1857.
Charles Goodwin,	1831,	1855.
*Russell Bunce,	1837,	1846.
*James H. Wells,	1839,	1857.
Lynde Olmsted,	1840,	1841.
*Amos M. Collins,	1842,	1857.
*Francis Parsons,	1842,	1858.
*David F. Robinson,	1842,	1858.
Calvin Day,	1842,	1861.
*Albert W. Butler,	1846,	1858.
Henry A. Perkins,	1851,	1862.
Samuel S. Ward,	1852,	1862.
Roland Mather,	1855,	1866.
Chauncey Howard,	1857,	1864.
Nathaniel Shipman,	1857.	
Leonard Church,	1858.	
Lucius Barbour,	1858.	
Geo. M. Bartholomew,	1858.	
John C. Parsons,	1859.	
Pinckney W. Ellsworth,	1861.	
Erastus Collins,	1862.	
Jonathan B. Bunce,	1862.	
Olcott Allen,	1864.	
Rowland Swift,	1866.	

SECRETARIES.

William W. Ellsworth,	1816, 1818.	*Daniel P. Hopkins,	1830, 1835.
*Jonathan Law,	1818, 1820.	Barzillai Hudson,	1835, 1860.
*Seth Terry,	1820, 1830.	John C. Parsons,	1860.

TREASURERS.

*Ward Woodbridge,	1816, 1817.	James B. Hosmer,	1837, 1864.
*James H. Wells,	1817, 1837.	Roland Mather,	1864.

COMMISSIONERS OF THE FUND.

*William Ely,	1824, 1839.	*Seth Terry,	1839, 1864.
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PRINCIPALS.

*Thomas H. Gallaudet,	1817,	1830.
*Lewis Weld,	1830,	1853.
William W. Turner,	1853,	1863.
Collins Stone,	1863.	

ASSISTANT INSTRUCTORS.

Laurent Clerc,	1817,	1858.
*Wm. C. Woodbridge,	1817,	1821.
*Isaac Orr,	1818,	1824.
*Lewis Weld,	1818,	1822.
Wm. W. Turner,	1821,	1853.
Harvey P. Peet,	1822,	1831.
Horatio N. Brinsmade,	1823,	1832.
*Elizur T. Washburn,	1826,	1829.
Wilson Whiton,	1826.	
*George H. Loring,	1826,	1834.
Fisher A. Spofford,	1828,	1833.
David E. Bartlett,	1828 and 1859,	1832.
Charles Rockwell,	1829,	1831.
Frederick A. P. Barnard,	1831,	1832.
*Luzerne Rae,	1831 and 1839,	1838 and 1854.
Edmund Booth,	1832,	1839.
*Joseph D. Tyler,	1832,	1839.
Samuel Porter,	1832 and 1846,	1836 and 1861.
Collins Stone,	1833,	1852.
Ebenezer B. Adams,	1835,	1838.
Jared A. Ayres,	1835,	1866.
Henry B. Camp,	1838,	1864.
John O. David,	1838,	1841.
*Lucius H. Woodruff,	1840,	1851.
Oliver D. Cooke,	1845,	1853.
*James L. Wheeler,	1847,	1863.
Catharine P. Brooks,	1850,	1855.
John C. Bull,	1852.	
Theodore J. Holmes,	1853,	1856.
Richard S. Storrs,	1853 and 1866,	1864.
John R. Keep,	1854.	
Elizabeth C. Bacon,	1854,	1863.
Eliza H. Wadsworth,	1855,	1862.
Mary A. Mann,	1855.	
Sarah W. Storrs,	1855.	
Edward M. Gallaudet,	1856,	1857.
William H. Sutton,	1857,	1860.
Melville Ballard,	1858,	1860.
Elizabeth V. Beers,	1859,	1864.
Elizabeth Weston,	1859,	1862.
Jonathan L. Noyes,	1860,	1866.
DeWitt Tousley,	1860,	1865.
Jacob J. Middleton,	1863,	1866.
Edward C. Stone,	1864.	
William A. Ayres,	1864,	1865.
Catharine Blauvelt,	1864.	
William H. Weeks,	1865.	

*Catharine T. Robinson,	1865,	1866.
Job Williams,	1866.	
Arthur H. Whitmore,	1866.	

TEACHERS OF ARTICULATION.

Elizabeth H. Wadsworth,	1857,	1862.
Adelaide A. Trask,	1862,	1863.

TEACHERS OF DRAWING.

Joseph Monds,	1844,	1848.
F. Julius Busch,	1853,	1858.
Edward Behl,	1858,	1860.
J. Weidenmann,	1860,	1864.
Louise Stone,	1866.	

TEACHERS OF PENMANSHIP.

W. R. Small,	1854,	1860.
Edwin S. Bartlett,	1860,	1861.
Wm. W. Douglass,	1861,	1862.
John A. Martin,	1862,	1863.

PHYSICIANS.

*Mason F. Cogswell,	1817,	1828.
*George Sumner,	1828,	1854.
E. K. Hunt,	1854.	

SUPERINTENDENTS OR STEWARDS.

	<i>Elec'd.</i>	<i>Ret'd.</i>		<i>Elec'd.</i>	<i>Ret'd.</i>
*Abraham O. Stansbury,	1817,	1818.	Abraham C. Baldwin,	1847,	1854.
*Samuel Whittlesey,	1814,	1824.	Lucius Morton,	1854,	1855.
Harvey P. Peet,	1824,	1831.	J. M. Allen,	1855,	1865.
William W. Turner,	1831,	1847.	Henry Kennedy,	1865.	

ASSISTANT STEWARD.

Salmon Crossett.

MATRONS.

*Martha Stansbury,	1817,	1818.	Lydia H. Peaslee,	1831,	1839.
*Abigail G. Whittlesey,	1818,	1824.	Phebe C. White,	1839.	
*Margaret M. Peet,	1824,	1831.			

ASSISTANT MATRONS.

Nancy Dillingham,	1852.	Louisa P. Hotchkiss,	1864,	1865.
Mary A. Hull,	1855,	1865.	Rebecca A. Cady,	1866.

*Deceased.

List of Pupils of the American Asylum

FROM THE OPENING OF THE SCHOOL, APRIL 15, 1817, TO MAY 11, 1867.

NAME.	RESIDENCE.	Time of Adm.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Abbott, John W.	Sidney, Me.	1865 13	Eruption in head at 14 m.		Maine.	4 yrs.	Now a pupil.
Abbott, Laura	Lyndeborough, N. H.	1829 18	Illness at 1 1/2 year.		N. Hamp.		Married a deaf mute.
Abbott, William W.	Northumberland, N. H.	1861 11	Scarlet fever at 8 mos.		N. Hamp.		Now a pupil.
Abell, Chloe	St. Albans, Vt.	1829 18	Disease in head at 8 m.		Vermont.	4 "	Married a deaf mute; dead.
Acheson, Charles	W. Randolph, Mass.	1864 10	Congenital.	Parents 2 b. 2 u.	Mass.		Now a pupil.
Acheson, George W.	"	1864 11	"	"	Mass.		"
Adams, Alda M.	Charlestown, Mass.	1866 11	Scarlet fever at 1 year.		Mass.		"
Aikin, Mary	Londonderry, Vt.	1827 14	Scarlet fever at 4 years.		Vermont.	4 "	A tailoress.
Alcorn, William	Boston, Mass.	1849 23	Hearing lost at 2 years.		Mass.	4 "	"
Alden, Almira E.	Dixmont, Me.	1851 15	Scrofula at 7 years.		Maine.	3 "	"
Alden, Benj. H. B.	Camden, Me.	1857 19	Congenital.		Friends.	4 "	A mechanic.
Aldrich, Erwin E.	Smithfield, R. I.	1864 9	"	cousins.	Rhode I.		Now a pupil.
Alexander, Albert	Brattleborough, Vt.	1826 15	"		Vermont.	4 "	A farmer.
Alexander, Wm.	Cavendish, "	1833 24	Unknown.		"	1 1/4 "	Idiotic.
Allard Alonzo	Newark, "	1849 14	Congenital.	1 brother.	"	6 "	Married a deaf mute.
Allard, Jonathan	"	1841 16	"	1 brother.	"	5 "	"
Allen, Adoniram J.	Raynham, Mass.	1847 12	"	1 brother.	Mass.	6 "	"
Allen, Asa W.	Canterbury, Conn.	1845 9	"	Parents, 2 sis.	Conn.	5 "	A farmer; married.
Allen, Delia A.	Westfield, Mass.	1839 10	"	1 cous. 3 ch'n.	Mass.	5 "	Married.
Allen, Eliza	Canterbury, Conn.	1849 9	"	Par. 1 b. & sis.	Conn.	6 "	"
Allen, George W.	"	1817 14	"	3 children.	Friends.	1 mo.	A farmer; married a deaf mute.
Allen, Helena P.	Lynn, Mass.	1846 13	Whooping Cough at 6.		Mass.	6 yrs	"
Allen, Irenus	Hartland, Vt.	1848 9	Dropsy in head at 1 1/2 y.	1 sister.	Vermont.	5 "	"
Allen, James M.	East Windsor, Conn.	1840 13	Congenital.	2 sisters.	Conn.	6 "	A farmer.
Allen, Jonas R.	Hardwick, Mass.	1864 12	"		Mass.	2 1/2 "	"
Allen, Mary M.	East Windsor, Conn.	1840 10	"	1 bro. and 1 sis.	Friends & Ct.	6 "	Married a deaf mute.
Allen, Margaret	"	1850 11	"	1 brother 1 sis.	Ct. & Friends	8 "	"
Allen, Minerva	Hartland, Vt.	1853 10	Scarlet fever at 18 mos.	1 brother.	Vermont.	7 "	"
Allen, Phebe	Nantucket, Mass.	1830 21	Congenital.	{ 2 bro., 2 sis.	Mass.	3 1/2 "	"
Allen, Rebekah	Hartford, Me.	1825 21	"	ters and 11	Maine.	4 "	Married a deaf mute.
Allen, Sally	Fairfield, Conn.	1830 21	Dropsy in head at 3 yrs.	{ other relatives	Conn.	1 "	"
Allen, Sarah	Canterbury, Conn.	1843 10	Congenital.	Parents, 1 b. 1 s.	Conn.	6 "	Married a deaf mute.

Allen, Stedman A.	Rayham, Mass.	1851 10	Congenital.	1 brother.	Mass.	6 yrs.	A mechanic.
Allison, Archibald	Windsor, N. S.	1830 11	Scarlet fever at 3 yrs.		Friends.	5 "	A car-maker, married a deaf mute.
Andrews, Henry	Preston, Conn.	1832 13	Sickness in infancy.		Conn.	4 "	A mechanic.
Andrews, James	Paris, Maine.	1857 15	Congenital.		Maine.	6 "	A mechanic.
Andrews, John	Solon, "	1847 22	"	1 cousin.	Maine.	4 "	Died at the Asylum.
Andrews, Leonard	Essex, Mass.	1847 9	"		Mass.	1 "	
Andrews, Sally F.	Paris, Maine.	1858 22	"	1 brother.	Maine.	3 "	
Angier, Greenville	Boston, Mass.	1852 13	Scarlet fever at 2 yrs.		Friends.	2 "	
Annan, Josephine A.	Manchester, N. H.	1864 15	"		New H.	3 ½ "	Now a pupil.
Armor, Mary H.	Greensboro, Ga.	1860 19	Congenital.		Friends.	3 mos.	Died at the Asylum.
Arnold, Sophia M.	Rocky Hill, Conn.	1834 14	Scarlet fever at 2 yrs.	1 sister.	Conn.	4 yrs.	A mechanic; married a deaf mute; [dead.]
Arrington, James	Salem, Mass.	1827 15	Congenital.		Mass.	5 "	A farmer; married.
Atkins, Galen H.	Duxbury, Vt.	1835 13	Infla'n in head at 2 ½ y.		Vermont.	4 "	Now a pupil.
Atkins, Samuel W.	Bristol, Conn.	1818 10	Illness at 1 year.		Conn.	5 "	A tailor.
Atkins, Sylvia B.	Chatham, Mass.	1862 10	Congenital.		Mass.	8 ½ "	A teacher; married a deaf mute.
Atkinson, Hannah	Wolfboro, N. H.	1832 14	Brain fever at 2 years.		New H.	8 "	A mechanic.
Atwood, Ralph H.	Watertown, Conn.	1848 10	Scarlet fever at 4 y 9 m.		Friends.	3 ½ "	dead.
Atwood, Wm. T.	Plymouth, Mass.	1825 13	Congenital.		Mass & F'ds.	6 "	A farmer; married a deaf mute.
Augur, Charles H.	Milford, Conn.	1846 10	A fall in infancy.		Conn.	8 "	A mechanic; married a deaf mute.
Austin, James	Swanton, Vt.	1845 15	Dropsy on brain at 1 y.		Vermont.	5 "	A carver.
Averill, Wm. H.	Branford, Conn.	1837 16	Unknown.		Conn.	5 "	Now a pupil.
Avery, Hannah A.	Salina, N. Y.	1836 10	Convulsion fits at 7 ½ y.		Friends.	6 "	Now a pupil.
Axt, Matilda	New Haven, Conn.	1866 9	Congenital.		Conn.	7 "	Now a pupil.
Ayers, Thomas	Boston, Mass.	1848 9	Typhus fever at 1 year.		Mass.	7 "	Now a pupil.
Ayers, Mary	Hartford, Conn.	1867 13	Fever at 5 years.		Conn.	7 "	Publisher and editor of the Radii; married a deaf mute.
Backus, Levi S.	Hebron, Conn.	1817 13	Congenital.		Friends.	3 "	Dead.
Backus, Lucy	Plainfield, Conn.	1817 40	"		"	5 "	Married a deaf mute.
Bacon, Julia A.	Roxbury, Mass.	1833 12	"	1 b. 1 s.	Mass.	4 "	"
Badger, Abigail	Charlestown, Mass.	1832 12	"	1 b. 1 s.	"	5 "	"
Badger, Mary E.	"	1837 10	"	2 sisters.	"	6 ½ "	Now a pupil.
Badger, Oliver	"	1848 9	"		Maine.	4 "	Married.
Bailey, Arthur E.	Poland, Maine.	1865 7	"		Mass.	2 "	Married a deaf mute.
Bailey, Austin	West Springfield, Mass	1830 14	Spotted fever at 1 ½ yr.	1 b. 1 s.	Conn. & F'ds.	2 "	
Bailey, Harriet	Norwich, Conn.	1817 18	Congenital.	1 b. 1 s.	"	7 "	A mechanic; married a deaf mute.
Bailey, Maria	"	1817 20	Small pox at 1 year.		New H.	6 "	A shoemaker; "
Bailey, Martha J.	Swansey, N. H.	1860 9	Congenital.	1 second cos.	Me. & F'ds.	4 ½ "	Dead.
Bailey, Osgood	N. Bridgeton, Me.	1835 16	"		Mass.	6 "	
Bailey, Wm.	Boston, Mass.	1844 12	Inflam. fever at 15 m.		Conn.	2 "	
Baker, Abby J.	Farfield, Conn.	1835 12	Unknown.		Mass.	7 "	
Baker, Edmund C.	Boston, Mass.	1854 9	Fall at 11 mo.				

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Age.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Baker, Selem A.	So. Yarmouth, Mass.	1859 11	Ulcers in ears at 2 yrs.	1 brother.	Mass.	6 yrs.	A mechanic.
Balch, George H.	Bradford, "	1843 10	Scarlet fever at 1 year.		"	6	Now a pupil.
Baldwin, Charles F.	Litchfield, Conn.	1864 10	Congenital.		Conn.	"	Died at the Asylum.
Baldwin, Charles O.	Chester, Vt.	1838 17	Blow on head at 1½ yr.		Vermont.	1	A farmer.
Ball, Benj. W. E.	Wendell, Mass.	1825 18	Spotted fever at 8½ yrs.	1 brother.	Mass.	3	A teacher; married; dead.
Ball, Danforth E.	"	1824 16	" " 7	1	Mass. & F'ds.	5	Died at the Asylum.
Ball, George W.	Amherst, Me.	1848 10	Congenital.		Maine.	2½	
Ball, Julia R.	Suffield, Conn.	1825 14	Illness at 1 year.		Friends.	4	Teacher.
Ballard, Melville,	Eryeburg, Me.	1850 11	Fall at 1½ years.		Maine.	8½	Idiotic.
Barber, Loren,	Hartford, Conn.	1840 15	Ulcers in head.		Conn.	1	
Barber, Thirza L.	Killingly, "	1843 14	Congenital.		"	5	
Barker, Anna F.	Jewett City, Conn.,	1859 10	Whoop. cough at 5 m.	1 uncle.	"	3½	Died at the Asylum.
Barnaby, William O.	Digby, N. S.	1855 15	Bilious fever at 18 mo.		N. S.	4	Now a pupil.
Barnard, Adda J.	Lowell, Mass.,	1865 10	Disch. from ears at 1½ yr.	2 sisters.	Mass.	7	A mechanic; married a deaf mute.
Barnard, Albert F.	Nantucket, Mass.	1832 9	Congenital.	1 sis. and 1 bro.	"	6	Dead.
Barnard, Anna	"	1833 11	"	"	"	5½	Married a deaf mute.
Barnard, Lucretia	"	1826 12	"	Parents.	"	1	
Barnard, Lucretia K.	Boston, Mass.	1863 10	Fall at 10 mos.		Friends.	3	A mechanic; married.
Barnes, James	Baltimore, Md.	1817 12	Unknown.	1 sister.	Mass.	3 mos.	Idiotic.
Barnes, Marshall P.	Blackstone, Mass.	1846 14	Congenital.	1 brother.	"	6 yrs.	Married a deaf mute.
Barnes, Mary	"	1838 15	"		Vermont.	5	A merchant; married a deaf mute.
Barnum, Norval D.	Shoreham, Vt.	1833 14	"		Friends.	6	Married; dead.
Barrett, Charles	New Ipswich, N. H.	1817 9	Illness at 3 years.		Mass.	"	Now a pupil.
Barrett, William S.	Plymouth, Mass.	1865 13	Congenital.		Vermont.	1	A mechanic.
Barrows, Dapiel M.	Bridport, Vt.	1830 18	"		Conn.	11	Married a deaf mute.
Bartholomew, Cornelia	New Haven, Conn.	1854 6	Catarrhal fever at 9 m.	[1 cousin	N. H.	6½	A farmer.
Bartlett, Abigail	Nottingham, N. H.	1846 12	Congenital.	1 bro., 1 sis. and 2 sis. and 1 cos.	"	6½	Married a deaf mute.
Bartlett, Franklin P.	"	1850 10	"	1 sis., 1 bro. and [1 cousin	Friends.	5	A farmer.
Bartlett, Harriet	"	1846 18	"		Conn.	7	A shoemaker; married.
Bartlett, James D.	North Guilford, Conn.	1854 12	"		Mass.	5	A tailor.
Bartlett, Leonard,	East Killingly, "	1847 14	Ulcers in head at 14 m.		Vermont.	6	Married a deaf mute; married.
Bartlett, Mary,	Plymouth, Mass.	1819 17	Illness at 1 year.		N. H.	4	Married a deaf mute; dead.
Bartlett, Rebecca	Brownington, Vt.	1836 28	Illness at 4 years.		Vermont.	3	Dead.
Bartlett, Sarah E.	Lyndeborough, N. H.	1840 18	Infla'n of brain at 1 yr.		Vermont.	1½	
Bassett, Amanda	Hinesburgh, Vt.	1834 28	Disease in head at 6 yrs.		Vermont.	"	

Bassett, Amanda F.	Derby, Conn.	1841 15	Congenital.		3 mos.	Idiotic.
Bastinella, Oliver	Pittsfield, Mass.	1865 13	Scarlet fev. at 2½ y.		Now a pupil.	
Bates, Abby E.	Bellingham, Mass.	1849 13	Scarlet fever at 1 year.		6 yrs.	
Beall, Louisa	Covington, Ga.	1837 11	Congenital.	2 brothers.	5 "	Georgia.
Beall, Washington	"	1835 12	"	1 bro. and 1 sis.	5 "	"
Beard, David	Milford, Conn.	1829 31	"	1 bro., 1 sis. and [3 cous.	2 "	A laborer; married.
Becker, Jacob	Boston, Mass.	1847 11	"		6 "	A mechanic.
Beckley, Julius	Barre, Vt.	1838 13	Ulcers in head in infan.		2 "	Married a deaf mute.
Bedford, Caroline,	New Haven, Conn.	1818 21	Unknown.		2 "	Idiotic; died at the Asylum.
Beecher, Ferdinand A.	Orange, Conn.	1848 8	Catarhal fever at 8 m.		5 "	A machinist.
Beecher, Isaac	Fairfield, Conn.	1821 17	Unknown.		4½ "	A farmer; married a deaf mute.
Beers, Robert D.	Wethersfield, Conn.	1844 12	A fall at 4 years.		8 "	A mechanic.
Belden, Emily	Boston, Mass.	1828 26	Unknown.		1 "	Idiotic.
Beltis, Thomas	Ashfield, "	1852 8	Fits at 2½ years.		7 "	"
Bement, Marie L.	Bridgeport, Conn.	1854 10	Congenital.		8 "	"
Benjamin, Barzillai	Bridgeport, Conn.	1845 8	Scarlet fever at 15 mo.		3 "	Friends.
Bennett, Emma J.	Searsmont, Me.	1851 11	Congenital.	1 sister.	6 "	Maine.
Bennett, George H.	Brooklyn, Conn.	1855 10	Scarlet fever at 3 yrs.		5½ "	Conn.
Bennett, Lenora	Searsmont, Me.	1859 11	Congenital.	1 sister.	6 "	Maine.
Bennett, Mary J.	Charleston, S. C.	1847 12	"		4½ "	So. Carolina.
Bennison, Margaret H.	Salem, Mass.	1843 11	Whoop, cough at 2 yrs.	1 sister.	6 "	Me. & Mass.
Bennison, Matilda B.	"	1843 19	Scarlet fever at 5 mo.	1 "	5 "	Dead.
Berry, Aaron W.	Palmyra, Me.	1853 17	Congenital.	2 cousins.	4 "	"
Berry, George A.	Vienna, "	1859 13	"	1 bro. & 4 cous.	6 "	"
Berry, Lewellyn	"	1851 11	"	1 b., 4 c.&oth.rel	5 "	"
Berry, Moses	Palmyra, "	1845 16	"	1 bro. and 1 sis.	4 "	Married.
Berry, Sally A.	"	1845 20	"	2 brothers.	4 "	Married a deaf mute.
Berry, Thomas H.	"	1845 24	"	1 bro. and 1 sis.	3 "	"
Berton, Emma A.	Frederickton, N. B.	1839 24	A fall at 2 years.		5 "	Friends.
Bickford, Sarah K.	Belgrade, Me.	1860 10	Congenital.		6 "	Maine.
Bierce, Mary C.	Cireleville, O.	1862 18	Scarlet fever at 6 mos.		2 "	Friends.
Bigelow, Samuel S.	Harvard, Mass.	1844 13	"		2 "	Mass.
Bird, William L.	Naugatuck, Conn.	1858 9	Scarlet fever at 6½ yrs.		1½ "	Idiotic; dead.
Birdsong, Thomas H.	Calhoun's Ferry, Ga.	1835 15	Congenital.	1 bro. and 2 sis.	8 "	Conn.
Bishop, Charles	Russell, Mass.	1819 15	Typhus fever at 4 yrs.	1 brother.	5 "	Dead.
Bishop, David	"	1819 13	" 2 "	1 "	4 "	A mechanic; married.
Bishop, Lorenzo	Unity, N. H.	1844 16	Illness at 1 year.		4 "	A mechanic.
Bishop, Stella M.	E. Avon, Conn.	1866 13	Congenital.		3 "	Now a pupil.
Blaisdell, John W.	Tamworth, N. H.	1849 9	"		5 "	"
Blaisdell, William	Goffstown, "	1827 13	Spotted fever at 9 mo.		3 "	A mechanic; married a deaf mute.

List of Pupils---Continued.

NAMES.	RESIDENCE.	Time of Ad.	Age.	Cause of Deafness.	Deaf and dumb relatives.	How sup'ort'd	Time under instruct	REMARKS.
Blakeley, Harvey	Roxbury, Conn.	1859	11	Congenital.	2 brothers.	Conn.	7 yrs.	A laborer.
Blakeley, Stephen A.	"	1847	9	"	2 brothers.	Conn.	6 "	"
Blakeley, William	"	1853	13	"	2 brothers.	Conn.	6 "	"
Blanchard, Squire	Hinsdale, N. H.	1829	19	Lost hearing at 1 year.		N. H.	3 "	A laborer.
Blish, William L.	Willimantic, Conn.	1851	13	Canker rash at 4 years.		Conn.	6 "	A farmer; married.
Bliss, Eleazer W.	Springfield, Mass.	1824	21	Illness at 2 1/2 years.		Friends.	6 "	"
Bliss, Fannie K.	Warren,	1861	13	Congenital.		Mass.	4 "	"
Bliss, Florida	Lorain, N. Y.	1821	25	Measles at 1 month.		Friends.	2 "	Married; dead.
Blizzard, Dorsey D.	Milledgeville, Ga.	1837	22	Congenital.	2 sis. 1 bro. 2 c.	Georgia.	3 "	A mechanic; married; dead.
Blizzard, Elizabeth	"	1836	14	Lost hearing at 2 yrs.	1 sis. 4 cousins.	"	3 "	Died at the Asylum.
Blizzard, Halstead	"	1837	11	Congenital.	1 bro. 2 sis. 2 c.	"	5 "	A mechanic.
Blizzard, Penney	"	1836	11	"	1 sis. 2 bro. 2 c.	"	4 1/2 "	"
Blizzard, Sarah	"	1837	10	"	1 sis. 2 bro. 2 c.	"	5 "	"
Blood, Charles H.	Fitchburg, Mass.	1859	12	Sickness in infancy.	1 brother.	Mass.	7 "	Married a deaf mute.
Boardman, Eliza C.	Whitesborough, N. Y.	1817	93	Illness at 2 1/2 years.		Friends.	2 "	"
Boardman, Esther	Middlebury, Vt.	1826	16	Lost hearing at 4 mos.		Vermont.	4 "	"
Boardwin, Delia D.	Boston, Mass.	1845	11	Congenital.	1 bro. & 1 sis.	Mass.	6 "	"
Boardwin, George	"	1845	8	Congenital.	2 sisters.	Mass.	6 "	A barber.
Boardwin, Susan F. A.	"	1845	10	Congenital.	1 sis. 1 bro.	Mass.	6 "	Married a deaf mute.
Bogan, Jane	Jasper Co., Ga.	1839	27	Congenital.	1 sister.	Friends.	1 "	Married.
Bogan, Rosanna	"	1863	8	Congenital.	1 brother.	Friends.	3 "	"
Bond, Julia P.	Hartford, Conn.	1828	17	Spotted fever at 4 yrs.	1 sister.	Conn.	4 "	Now a pupil.
Bond, Thomas S.	Hartford, Conn.	1825	14	Congenital.		Mass.	3 1/2 "	Now a pupil.
Booth, Edmund	Longmeadow, Mass.	1825	16	Congenital.		Maine.	3 "	Editor; married a deaf mute.
Boston, Oliver S.	South Berwick, Me.	1825	16	Congenital.		Maine.	3 "	"
Bosworth, Jacob	Buckfield, Me.	1861	15	Congenital.		Mass.	5 "	Married a deaf mute.
Bowden, John	Marblehead, Mass.	1830	24	Congenital.	1 sister.	Mass.	3 "	"
Bowdish, Moses S.	Douglass, Mass.	1831	14	Congenital.	1 bro. 3 ch'n.	Mass.	5 "	A mechanic; married.
Bowdish, Paulina	"	1825	12	Scarlet fever at 2 1/2 yrs.		Mass.	5 "	Married a deaf mute.
Bowers, Caroline	Bristol, N. H.	1857	11	Lung fever 3 months.		N. Hamp.	4 "	Married a deaf mute.
Bowers, Sarah E.	Beddington, Me.	1841	17	Whoop'g cough at 6m.		Me. & Mass.	7 "	Married a deaf mute.
Boyce, Aldis	Richmond, N. H.	1825	15	Lost hearing in infancy		N. Hamp.	5 "	Married.
Boyden, Esbon D.	Hardwick, Mass.	1860	10	Scarlet fever at 6 mos.		Mass.	1 "	Dead.
Boydington, George	Pontitiss, Mc.	1825	18	Typhus fever at 4 1/2 yrs.		Maine.	1 "	Now a pupil.
Brace, Julia	Hartford, Conn.					Asy. & Fr'ds.		Deaf, dumb and blind

Bruce, Lydia	Somersworth, N. H.	1846	21	Scarlet fever at 3 yrs.	1 brother.	Conn.	6	“	Married a deaf mute.
Bradbury, Mary C.	Buxton, Me.	1845	11	Congenital.	1 sister.	Vermon.	5	“	Married a deaf mute.
Bradley, Aaron B.	Fairfield, Conn.	1828	15	Congenital.	Mother & uncle.	Friends.	3	“	Married a deaf mute.
Bradley, David F.	Newfane, Vt.	1833	12	Congenital.	1 brother.	Maine.	4 1/2	“	Insane.
Brigg, Lucy A.	S. Kent, Conn.	1863	16	Scarlet fever at 3 yrs.	1 brother.	Conn.	5 1/4	“	Now a pupil.
Branch, Degrand DeL.	Hartford, Conn.	1866	15	Measles at 2 yrs.	{F. a., son, 2 nep's & 5 o. rel.}	N. Hamp.	5	“	Now a pupil.
Bransfield, Edmund	Portland, Conn.	1855	9	Scarlet fever at 2 yrs.	{Parents, g'dfather and other relatives.}	N. Hamp.	6	“	A farmer; twice married.
Breck, Josephine M.	Medfield, Mass.	1849	19	Scarlet fever at 2 yrs.	2 sis., 1 cou.	N. Hamp.	4	“	A teacher; married.
Brennan, Joseph	Stafford, Coun.	1857	12	Brain fever at 4 yrs.	2 sis. & 1 cou.	S. Carolina.	4 1/2	“	Married.
Brewster, John	Hampton, Conn.	1817	51	Congenital.	2 sis. & 1 cou.	S. Carolina.	4	“	Married a deaf mute.
Brick, John	Boston, Mass.	1849	9	Fits at 9 mos.	1 sis. & 1 cou.	Friends.	3	“	Married; dead.
Bridgman, Asa D.	Dorchester, N. H.	1849	17	Scarlet fever at 7 mos.	1 sis. & 1 cou.	Maine.	7	“	Dead.
Bridgman, Emily	Westhampton, Mass.	1844	9	Ulcers in head at 2 yrs.	1 sis. & 1 cou.	Maine.	8	“	A mechanic; married.
Briggs, Lewis	Turner, Me.	1835	21	Illness at 1 1/2 years.	1 sis. & 1 cou.	Fr'ds. & R. I.	5	“	A farmer; married a deaf mute.
Briggs, Sarah J.	Brandon, Vt.	1839	12	Infla'n in head at 1 yr.	1 sis. & 1 cou.	Friends.	3	“	Married a deaf mute.
Brightman, Job A.	Westport, Mass.	1840	11	Congenital.	1 sis. & 1 cou.	Mass.	6	“	Married a deaf mute.
Brightman, Theodore	“	1843	12	Congenital.	1 sis. & 1 cou.	Mass.	4	mos.	A mechanic; married a deaf mute.
Brooks, Catherine P.	East Bloomfield, N. Y.	1818	10	Fever at 4 years.	1 sis. & 1 cou.	Vermon.	6	“	Died at the Asylum.
Brown, Alba S.	Montpelier, Vt.	1850	15	Disease in head at 1 y.	1 sis. & 1 cou.	Friends.	5	“	Married a deaf mute.
Brown, Benjamin K.	Canton, Me.	1855	17	Sores in head at 3 yrs.	1 sis. & 1 cou.	Vermon.	5	“	Married a deaf mute.
Brown, Byron A.	Exeter, Me.	1859	14	Scarlet fever at 2 yrs.	1 sis. & 1 cou.	Maine.	4 1/2	“	A cabinet-maker.
Brown, Emily E.	N. Stonington, Conn.	1864	12	Gathering in head in in-	1 sis. & 1 cou.	Conn.	6	“	Now a pupil.
Brown, Hannah	Thetford, Vt.	1857	11	Scarlet f. 3 m. [fancy.	1 sis. & 1 cou.	Vermon.	6	“	Now a pupil.
Brown, Helen H.	Pay, Me.	1855	13	Congenital.	1 sis. & 1 cou.	Maine.	5	“	Married a deaf mute.
Brown, John G.	Providence, R. I.	1828	15	Disease in head at 7 y.	1 sis. & 1 cou.	Friends.	3	“	A mechanic; married a deaf mute.
Brown, Martha M.	Waldoboro, Me.	1855	13	Scarlet f. at 2 1/2 years.	1 sis. & 1 cou.	Maine.	4 1/2	“	Insane.
Brown, Samuel A.	Milford, Conn.	1844	11	Congenital.	1 sis. & 1 cou.	Conn.	5 1/4	“	A shoemaker; married.
Brown, Susan F.	N. Dunbarton, N. H.	1865	14	Sores in head, bet. 3 & 4	1 sis. & 1 cou.	N. Hamp.	5	“	Now a pupil.
Brown, Thomas	Henniker, N. H.	1822	18	Congenital.	1 sis. & 1 cou.	N. Hamp.	6	“	A farmer; twice married.
Brown, Thomas L.	“	1851	12	Congenital.	1 sis. & 1 cou.	N. Hamp.	4	“	A teacher; married.
Bruce, Caroline M.	Andersonville, S. C.	1835	14	Congenital.	1 sis. & 1 cou.	S. Carolina.	4 1/2	“	Married.
Bruce, Harriet	“	1842	11	Congenital.	1 sis. & 1 cou.	S. Carolina.	4	“	Married a deaf mute.
Bruce, Mary A.	“	1835	15	Congenital.	1 sis. & 1 cou.	Friends.	3	“	Married; dead.
Brumfield, Emma A.	Plymouth, Mich.	1833	12	Disease in head at 2 y.	1 sis. & 1 cou.	Maine.	7	“	Dead.
Buck, Cyrus F.	Burlington, Me.	1860	20	Congenital.	1 sis. & 1 cou.	Maine.	7	“	Dead.
Bucknell, Major P.	Harrison, Me.	1854	10	Scarlet fever at 6 yrs.	1 sis. & 1 cou.	Maine.	8	“	A mechanic; married a deaf mute.
Budlong, James	Warwick, R. I.	1842	17	Scarlet fever at 1 yr.	1 sis. & 1 cou.	Fr'ds. & R. I.	5	“	Dead.
Buell, Harry	Pittsford, Vt.	1817	21	Congenital.	1 sis. & 1 cou.	Friends.	3	“	Dead.
Buffum, George	Salem, Mass.	1846	21	Congenital.	1 sis. & 1 cou.	Mass.	3 1/2	“	A mechanic.

List of Pupils—Continued.

NAMES.	RESIDENCE.	On Ad- mission.	Cause of Deafness.	Deaf and Dumb relatives.	How sup'rt'd.	Time under instruc	REMARKS.
Bugbee, Amanda M.	Montpelier, Vt.	1845 16	Ulcers in head at 2½ y.	2 sisters.	Vermont.	2 yrs.	Married a deaf mute.
Bugbee, Chloe	"	1845 12	Congenital.	2 "	"	2 "	"
Bull, Celestia	Winchester, Conn.	1818 11	Spotted fever at 2 yrs.		Conn.	5 "	"
Bullard, Betsey	New Marlboro', Mass.	1823 30	Congenital.	1 sister.	Mass.	6 mo.	
Bullard, Minerva	"	1825 14	"	1 "	"	5½ yrs.	Married a deaf mute; dead.
Bumpus, Ezra B.	Wareham, Mass.	1852 12	Ulc. in head before 1 y.		"	6 "	
Burbank, James	Barnet, Vt.	1826 15	Spotted fever at 3 yrs.		Vermont.	4 "	A mechanic; married; dead.
Burgess, Charles	New Bedford, Mass.	1819 12	A fall at 1½ yrs.		Mass. & F'ds.	4 "	A mechanic; twice married; dead.
Burgess, Susanna	Grafton, Vt.	1825 17	Scarlet fever at 1½ yrs.		Vt.	4 "	Married a deaf mute; dead.
Burnham, Abby	Windham, N. H.	1854 12	Brain fever at 1½ yrs.		N. H.	3 "	
Burnam, Pliny D.	Middletown, Vt.	1826 20	Spotted fever at 2½ yrs.		Friends.	3½ "	A farmer; twice married.
Burpe, John B.	Frederickton, N. B.	1842 12	Congenital.		"	5 "	A mechanic; dead.
Bursell, Alfred M.	E. Weymouth, Mass.	1858 9	"		Mass.	6 "	
Bursell, Salome	Candia, N. H.	1836 16	Ulcers in head at 2 yrs.		N. Hamp.	4 "	Dead.
Burt, Freeman	Cincinnati, Ohio.	1818 13	Unknown.		Friends.	3½ "	
Burton, Eliza	Wilton, N. H.	1834 20	Spotted fever at 1½ yrs.		Vermont.	3 "	Married a deaf mute.
Butcher, William L.	Naugatuck, Conn.	1863 10	Congenital.	Cousins.	Conn.	1 "	
Butler, David	Gloucester, Mass.	1848 17	Drop'y in head at 1½ y.	2 brothers.	Mass.	6 "	A tailoress.
Butler, Hannah S.	Thomaston, Me.	1842 23	Congenital.	1 bro. and 1 sis.	Maine.	1 "	A truckman.
Butler, James S.	"	1842 16	"	1 "	"	1 "	Dead.
Butler, John	"	1842 21	"	1 "	"	1 "	Now a pupil.
Butler, John	Boston, Mass.	1863 10	Sickness at 3 months.		Mass.	"	Married a deaf mute; dead.
Buler, Sally T.	Nottingham, N. H.	1833 14	Congenital.	3 consins.	N. Hamp.	4 "	
Buxton, William H.	Barrington, R. I.	1860 16	Scarlet fever at 2½ yrs.		R. I.	5 "	
Buxton, Jonathan	Danvers, Mass.	1846 10	Congenital.	1 brother.	Mass.	6 "	A mechanic; married.
Buxton, William	"	1842 13	Ulcers in head at 1½ y.	1 "	"	5 "	
Buzzell, Lydia A.	Barrington, N. H.	1850 11	Congenital.	1 sis. and 1 bro.	N. Hamp.	5 "	
Buzzell, Sarah	"	1841 11	"	1 "	"	5 "	Dead.
Byington, Charles H.	Southington, Conn.	1847 9	"	1 "	Conn. & F'ds.	9 "	Dead.
Caldwell, George W.	Winchester, N. H.	1830 16	Fall at 2 years.		N. Hamp.	4 "	Married a deaf mute.
Calhan, Margaret	Cambridge, Mass.	1858 9	Ulcers in head at 3 yrs.		Mass.	7 "	
Callender, Anna G.	Cambridgeport, Mass.	1856 9	Whoop, cough at 18 m.	2 sis. and 1 bro.	"	6½ "	
Campbell, Abner P.	Bowdoin, Me.	1843 19	Congenital.	2 bro. and 1 sis.	Maine.	3 "	Married a deaf mute.
Campbell, Adelia L.	"	1855 14	"	1 bro. and 1 sis.	"	4 "	"
Campbell, Alexander	St. Paul's Island, N.S.	1845 10	"	1 bro. and 1 sis.	Friends.	3 "	

Campbell, Charles	Warwick, R. I.	1858	8	Scarlet fever at 18 mo.	2 brothers.	R. I.	16	yrs.
Campbell, Christina	"	1844	12	Congenital.	1 sis. and 1 bro.	Friends.	6	"
Campbell, Donald	"	1844	14	"	2 sisters.	"	2	"
Campbell, Elizabeth	Boston, Mass.	1859	9	"	2 sisters.	Mass.	6	"
Campbell, George	Bowdoin, Me.	1850	13	"	1 sis. & 1 cous.	Maine.	7	"
Campbell, James	Hartford, Conn.	1856	9	Fits and fever at 5 yrs.	2 cousins.	Conn.	8	"
Campbell, Jane	Bedford, N. H.	1844	23	Congenital.	1 sis. & 1 cous.	N. Hamp.	4	"
Campbell, Seth	"	1841	21	"	1 sis. & 1 cous.	"	3	"
Campbell, Sophia	"	1845	20	"	1 sister.	Mass.	1	"
Carey, Mary	Boston, Mass.	1863	9	"	1 brother.	"	2½	"
Carlin, John	Monson, Mass.	1855	10	"	1 sister.	"	6	"
Carlin, Sarah J.	Cambridge, Mass.	1845	8	"	1 brother.	"	7	"
Carpenter, Elizabeth A.	Mansfield, "	1856	8	Inflam. in head at 1 yr.		"	6	"
Carpenter, Emily J.	Warren, "	1859	10	"		"	1½	"
Carpenter, Willard	Littleton, N. H.	1822	11	Fever at 4½ years.		N. Hamp.	6	"
Carroll, Thomas	E. Cambridge, Mass.	1858	8	Congenital.		Mass.	8	"
Carter, Ferdinand A.	Auburn, Mass.	1849	9	Ulcers in head at 1 yr.		Maine.	8	"
Carter, James C.	Etna, Me.	1829	15	Measles at 1½ years.		Mass.	4	"
Carter, William T.	Blackstone, Mass.	1866	13	Fall at 4 mos.		Maine.	7	"
Cary, Daniel W.	Gardiner, Me.	1860	11	Lost hearing at 2½ yrs.	1 sister.	Mass.	3	"
Casey, John	Lawrence, Mass.	1853	8	Congenital.		"	7	"
Chaffin, Abbie L.	Worcester, "	1865	8	"		"	3	"
Challis, Lucinda S.	Danville, N. H.	1844	17	"		N. Hamp.	7	"
Chamberlain, Thos. J.	Bangor, Me.	1845	11	Scarlet fever at 7½ yrs.		Friends & Me.	4	"
Chamberlain, Wm M.	South Reading, Mass.	1844	12	"	2 bro. and 1 sis.	Mass.	3½	"
Chamberlayne, E'd P.	Richmond, Va.	1830	9	Congenital.	2 " " 1	Friends.	1	"
Chamberlayne, H. M.	"	1850	14	"	3 cousins.	Vermont.	4	"
Champion, Ellen	Westmore, Vt.	1863	14	"	1 sis. & 1 cous.	Conn.	6	"
Champlin, Sarah	Colchester, Conn.	1830	15	"	1 sister.	Maine.	6	"
Chandler, Charles C.	Bowdoin, Me.	1854	12	"	1 bro. & 3 cous.	Mass.	3	"
Chandler, George H.	Montague, Mass.	1838	13	Inflam. in head at 1 yr.		N. Hamp.	6	"
Chandler, John J.	Alstead, N. H.	1823	20	Congenital.	1 brother.	Maine.	8	"
Chandler, Margaret L.	Bowdoin, Me.	1857	9	"	1 " "	Mass.	4	"
Chapman, Albert W.	Cambridgeport, Mass.	1865	8	Scarlet fever at 6 mo.	1 sister.	Mass. & F'ds.	7	"
Chapman, Hardy P.	Salem, Mass.	1855	9	Congenital.	1 brother.	"	8	"
Chapman, Henry A.	"	1859	9	"	1 " "	Conn.	4	"
Chapman, Laura	Glastenbury, Conn.	1831	27	"	1 sister.	Mass.	8	"
Chase, Wm. K.	Charlestown, Mass.	1849	11	Throat distem. at 4 y.		N. Hamp.	7	"
Child, Chloe W.	Bath, N. H.	1858	12	Congenital.		Maine.	5	"
Chipman, Esther L.	Oxford, Me.	1842	14	Inflam. in head at 6 m.		"		

List of Pupils—Continued.

NAMES.	RESIDENCE.	DATE OF ENTRY.	CAUSE OF DEAFNESS.	DEAF AND DUMB RELATIVES.	HOW SUPPLIED.	TIME UNDER INSTRUCTION.	REMARKS.
Church, Zalmon A.	Mansfield, Conn.	1830 16	Congenital.		Conn.	4 yrs.	A laborer; married.
Cisco, Susan J.	New Haven, "	1861 17	"		"	5	
Clapp, Elmira D.	Newburgh, N. Y.	1860 11	"		Friends.	"	Now a pupil.
Clark, Abigail	New Boston, N. H.	1828 15	Spotted fever at 6 mo.	1 brother.	N. Hamp.	2	Married a deaf mute.
Clark, Ambrose B.	Groton, Conn.	1846 15	Congenital.	1 brother.	F'ds & Conn.	5	A mechanic.
Clark, Avery L.	Middleborough, Mass.	1836 13	"		Mass.	5	A farmer; married.
Clark, David P.	Rindge, N. H.	1825 11	Measles at 2 years.		N. Hamp.	4	A farmer; twice married to deaf mutes.
Clark, John	Monson, Mass.	1865 10	"		Mass.	"	Now a pupil.
Clark, John C.	New Boston, N. H.	1828 16	Spotted fever at 2 yrs.	1 sister.	N. Hamp.	2	A farmer; married a deaf mute; dead.
Clark, Mary M.	Lyme, Conn.	1843 12	Accident at 1½ yrs.		Conn.	5	Married a deaf mute.
Clark, Orinda	Halifax, Vt.	1825 23	Congenital.		Vt. & F'ds.	3	Dead.
Clark, Orlando A.	Mystic River, Conn.	1854 10	"	1 brother.	Conn.	8	
Cleaves, Daniel	Saco, Me.	1838 20	Typhus fever at 2½ yrs.		Maine.	4	Married a deaf mute.
Clement, Emily A.	Chelsea, Vt.	1838 17	Fever at 8 years.		Vermont.	5	Married.
Cleveland, Polly	Burlington, Conn.	1830 16	Illness at 1½ years.		Conn.	4	Married a deaf mute.
Closson, George W.	Lyme, "	1830 15	Congenital.	1 bro. and sis.	"	2½	A farmer; married.
Closson, Harriet T.	"	1839 12	"	2 brothers.	"	5	Married a deaf mute.
Closson, Jeremiah	"	1833 16	"	1 bro. and sis.	"	5	A laborer.
Clough, Benjamin	Gilmanton, N. H.	1825 17	Spotted fever at 6 yrs.		N. Hamp.	4	A mechanic; married a deaf mute.
Clough, Mary E.	"	1854 10	Congenital.		"	6	
Clough, Sylvester	Wentworth, "	1847 15	Scarlet fever at 1 yr.	1 uncle.	"	4	Dead.
Cobb, Abigail	Hancock, "	1844 15	" 3 yrs.	2 sisters.	"	1½	Dead.
Cobb, Caroline	"	1845 11	Congenital.	"	"	5	Dead.
Cobb, Lydia	Nelson, "	1835 14	"	2	"	4	Married a deaf mute.
Cobleigh, Henry	Worcester, Mass.	1821 21	Illness at 2 years.	1 brother.	Mass.	5	A farmer; married.
Cochran, Sarah J. A.	New Boston, Mass.	1827 14	Spotted fever at 1½ yrs.		N. Hamp.	1½	Died at the Asylum.
Coe, Sherman D.	Middletown, Conn.	1841 14	Whooping cough.		Conn.	1	Idiotic.
Coffin, Lucy S.	Newburyport, Mass.	1850 9	Congenital.		Mass.	9½	
Coffin, Sally C.	Wolborough, N. H.	1839 12	"		N. Hamp.	5	Married a deaf mute.
Cogswell, Leolah	Hartford, Conn.	1817 11	Spotted fever at 2½ yrs		Friends.	7	Dead.
Collins, Thomas	Readshoro, Vt.	1852 10	Congenital.		Vermont.	6	Married a deaf mute
Colley, Mary E.	Cornwall, "	1859 10	Scarlet fever at 4 mos.		"	6	
Colton, Celinda A.	Falmouth, Me.	1862 10	" 3 yrs.		Maine.	4	Now a pupil.
Compton, Eleanor A.	Vershire, Vt.	1843 13	Congenital.		Vermont.	6	Married a deaf mute.
	Georgetown, D. C.	1831 12	"	1 brother.	Friends.	"	Dead.

Compton, John W.	Georgetown, D. C.	1832	9	Congenital.	1 sister.	Friends.	7 yrs.	Clerk in U. S. Treas.; mar. a deaf m.
Comstock, George	Newport, R. I.	1817	20	"		"	7	A mechanic; married a deaf mute.
Conley, James	Mansfield, Mass.	1861	8	Scarlet fever at 2 yrs.		R. I.		Now a pupil.
Connors, John J.	Rindge, N. H.	1865	9	Cholera infant. at 2 y.		Mass.		"
Converse, Gustavus A.	Kingston, Mass.	1850	17	Congenital.		F'ds & N. H.	5	A mechanic; married a deaf mute.
Cook, Jane	Provincetown, Mass.	1836	19	"		Mass.	4	A tailoress.
Cook, Lauretta A.	Portland, Me.	1844	9	Scarlet fever at 3½ yrs.		Maine.	6	Now a pupil.
Cook, Thomas	Andover, Vt.	1865	12	Congenital.		Vermont.		"
Coolidge, Orrin G.	Brooklyn, Conn.	1860	10	"	1 son.	Conn.	4	A shoemaker; married a deaf mute.
Coon, Amos	Watertown, N. Y.	1831	15	Whoop. cough at 2 y.		Friends.	6 mo.	
Cooper, Charles H.	North Haven, Conn.	1835	12	Illness at 3 years.		Conn.	5½ yrs.	Married a deaf mute.
Cooper, Julia A. C.	E. Boston, Mass.	1865	12	" " 2		Mass.		Now a pupil.
Corcoran, Ellen	Manchester, N. H.	1849	12	Congenital.		N. Hamp.	5	"
Corning, Sherburn L.	Plymouth, Mass.	1837	11	A fall at 4 years.		Friends.	6	A mechanic; married a deaf mute.
Cotton, John R.	Fitchburg, Mass.	1862	12	Congenital.		Mass.		Now a pupil.
Coughlin, William	Williston, Vt.	1823	15	Scarlet fever at 10 mos.		Friends.	2	A mechanic; married a deaf mute.
Covell, Martin N.	Berlin,	1826	21	Congenital.	2 bro. and 2 sis.	Vermont.	4	
Covell, Sylvester	Cheshire, Conn.	1828	16	Scarlet fever at 2 yrs.		Conn.	4	Married a deaf mute.
Cowles, Emily A.	Westfield, Mass.	1853	11	" " 4½		Mass.	7	
Cowles, Lucy A.	Boston,	1846	12	Congenital.		"	6	A laborer; married a deaf mute.
Cox, Owen	Newport, R. I.	1860	8	"		R. I.		Now a pupil.
Crandall, Wm. F.	Horton, Nova Scotia.	1845	11	Scarlet fever at 2 yrs.		Friends.	4	
Crane, Elizabeth	Bath, Me. Vt.	1829	13	Congenital.		Maine.	4	A mechanic; dead.
Crawford, William A.	Williston, Vt.	1854	12	Scarlet fev. in infancy.		Vermont.	4	
Cremins, Ann	Cambridge, Mass.	1847	8	Congenital.		Mass.	6	
Crimmings, Margaret	Beverly,	1862	11	Brain fever at 3 yrs.		"		Now a pupil.
Cronan, Stephen	"	1864	10	Congenital.		"		"
Cross, Samuel S.	Watertown, Conn.	1851	10	Cold at 1 year.		Conn.	8	A mechanic.
Crossman, Franklin S.	Boxborough, Mass.	1829	18	Spotted fever at 2½ yrs.		Mass.	4	Married a deaf mute.
Crouch, Lois	Hinsdale, N. H.	1832	29	Illness at 1 year.		N. Hamp.	1½	"
Crownshield, Leon'd	Portland, Me.	1852	11	Congenital.		Maine.	4	A laborer; dead.
Crows, Julia	Arlington, Vt.	1858	13	"		Vermont.	6	
Cullinan, Martin	Manchester, Vt.	1846	12	Ulcers in head at 1½ y.		F'ds and Vt.	5	Married a deaf mute.
Culver, Henry	Waterville, Conn.	1866	10	Scarlet fever at 18 mo.		Conn.		Now a pupil.
Culver, Samuel L.	"	1864	9	Congenital.		"		"
Cummings, Daniel	Greenville,	1837	15	Illness at 6 mos.		N. Hamp.	4	A teacher.
Cummings, George W.	Antrim, N. H.	1847	12	Congenital.	1 cousin.	S. Carolina.	4½	"
Cunningham, Martha	Greenville Dist., S. C.	1852	13	"	1 sister.	Vermont.	7	Married a deaf mute.
Currier, Ellen R.	Danville, Vt.	1852	12	Scarlet fever at 18 mo.	"	"	6	A tailoress.
Currier, Mary J.	"	1852	12	Scarlet fever at 18 mo.	1	"		

List of Pupils—Continued.

NAMES.	RESIDENCE.	Age at admission.	Cause of Deafness.	Deaf and Dumb relatives.	How sup'ried.	Time under instruc.	REMARKS.
Currice, Emily	Florida, N. Y.	1833	Palsy at 10 mos.		Friends.	5 mo.	Married.
Curtis, Ann	Leeds, Me.	1831	Congenital.	3 bros. & 1 sis.	Maine.	4 yrs.	Married a deaf mute.
Curtis, Ebenezer W.	"	1831	"	2 bro. and 2 sis.	"	5 "	A farmer; married a deaf mute.
Curtis, George	"	1819	"	2 " 2 "	Mass.	6 "	A farmer; married a deaf mute.
Curtis, Moses	Wells, "	1819	"		Maine.	5½ "	A mechanic; married a deaf mute.
Curtis, Olive S.	Leeds, "	1825	Typhus fever at 1½ yrs.	3 bro. and 1 sis.	"	4 "	Married a deaf mute.
Cushing, Mary H.	Norwich, Vt.	1832	Congenital.		Vermont.	2 "	Insane.
Cutler, Abigail M.	Western, Mass.	1826	Illness at 4 yrs.		Friends.	3 "	Married a deaf mute.
Cutler, Holton O.	Warren, Mass.	1856	Brain fever at 5 yrs.		"	5 "	
Cutler, George F.	Iraaburgh, Vt.	1865	Congenital.		Vermont.		
Daly, Nancy J.	Chester, Conn.	1865	"		Conn.		Now a pupil.
Damon, Frank C.	Amherst, N. H.	1861	Sores in ears at 18 mo.		N. Hamp.		"
Danforth, Warren O.	Berkshire, Vt.	1846	Ulcers in head at 1½ y.		Vermont.	8 mo.	Idiotic.
Daniels, Abby J.	New London, Conn.	1857	Scarlet fever at 3½ yrs.		Conn.	8 yrs.	
Darling, Ann J.	Woodstock, Vt.	1840	Measles at 1½ yrs.		Vermont.	2 "	Married a deaf mute; dead.
Davenport, Angelina	Northampton, Mass.	1821	Spotted fever at 2½ yrs.		Mass.	3 "	
Davenport, John W.	Tiverton, R. I.	1847	Fits at 2 yrs.		R. I.	7½ "	A cabinet maker.
David, John O.	Boston, Mass.	1824	Fever at 1½ yrs.		Mass.	7 "	A mechanic; married a deaf mute.
Davis, Charles W.	Fairfield, Me.	1848	Congenital.		Maine.	4 "	Married a deaf mute.
Davis, Elijah R.	Chesterfield, N. H.	1825	"		N. Hamp.	4 "	A mechanic; married a deaf mute.
Davis, Ellen M.	Rockport, Mass.	1860	Scarlet fever at 3 yrs.		Mass.	6 "	
Davis, Francis C.	Cambridge, "	1848	Inflam. in head at 9 m.		"	8½ "	A machinist.
Davis, George W.	Milton, "	1840	Congenital.		"	6 "	A mechanic.
Davis, Henry H.	"	1855	Cold at 5 yrs.	1 brother.	"	6½ "	
Davis, Hiram	Bennington, Vt.	1839	Accident at 10 mos.	1 brother.	Friends.	2 "	Dead.
Davis, Jeremiah	Barnsted, N. H.	1834	Unknown.		Vermont.	2 "	Drowned at the Asylum.
Davis, Rosalia	Havanna, W. Indies.	1824	Congenital.		N. Hamp.	2 "	Dead.
Davis, Sarah M.	New London, Conn.	1851	Scarlet fever at 2½ yrs.		Friends.	8 "	
Davis, Silas	Whittingham, Vt.	1834	Ulcers in head at 2 yrs.		Conn.	8 "	
Davis, Zachary T.	N. Stonington, Conn.	1857	Congenital.		Vermont.	5 "	
Davison, Phiney J.	Waterford, Vt.	1843	Scarlet fever at 7 yrs.		Conn.	8 "	
Dawson, Benjamin	North Salem, N. H.	1854	" " 18 mo.		Vermont.	4 "	Died at the Asylum.
Day, Ann V.	W. Springfield, Mass.	1825	Illness at 1 yr.		N. Hamp.	4 "	"
Day, Myron W.	So. Royalston, "	1864	Congenital.		Mass.	5½ "	Dead.
Dean, Harry K.	Cincinnati, Ohio.	1860	Conges. of brain at 7 y.		Friends.	2½ "	Died at the Asylum.
						3 "	

Deberry, Edmund	Lawrenceville, N. C.	1838	15	Congenital.	2 sisters.	Friends. Maine.	4 yrs.	A mechanic; married a deaf mute.
Deering, Oliver D.	Saco, Me.	1847	16	Scarlet fever at 1½ yrs.	1 relative.	"	4 "	"
Deering, Wm. A.	Richmond, Me.	1859	8	Congenital.		Conn.	6 "	A farmer.
Deming, Leroy B.	West Meriden, Conn.	1854	10	Scarlet fever in infancy.		Vermont.	6 "	A mechanic; married a deaf mute.
Denison, Almond	Washington, Vt.	1828	14	Congenital.	2 sisters.	"	4 "	Dead.
Denison, Alpa M.	"	1838	17	"	1 bro. and 1 sis.	"	3½ "	"
Denison, Augusta	Essex, Conn.	1854	11	"	1 cousin.	Conn.	2 "	"
Denison, Gratia	Washington, Vt.	1838	15	"	1 bro. and 1 sis.	Vermont.	5 "	"
Denison, James	Royalton, "	1846	9	Scarlet fever at 4 yrs.		F'ds and Vt.	6½ "	A teacher; married a deaf mute.
Deniston, Caroline]	Francesstown, N. H.	1830	18	Congenital.	2 sisters.	N. Hamp.	4 "	Married a deaf mute.
Deniston, Mariette	"	1830	14	"	2 sisters.	"	4 "	"
Deniston, Mercy	"	1834	14	"	2 sisters.	N. H. & F'ds.	3 "	"
Dennis, Phebe	Fall River, Mass.	1836	19	Measles at 2 yrs.		Mass.	5 "	A mech.; married a deaf mute; dead.
Denny, Edward W.	Leicester, "	1825	14	Spotted fever at 1 yr.		"	5 "	Dead.
Densmore, Asahel	Conway, N. H.	1844	17	Ulcers in head at 6 mo.	2 bro. and 1 sis.	N. Hamp.	3 "	Married a deaf mute.
Derby, Almida	Weymouth, Mass.	1825	15	Congenital.	2 bro. and 1 sis.	Mass.	5½ "	"
Derby, Elvira	"	1825	14	"	1 bro. and 2 sis.	"	5½ "	A mechanic; dead.
Derby, Ira	"	1834	11	"	1 un., 2 a'ts. par.	"	6 "	Now a pupil.
Derby, Ira H.	So. Weymouth, Mass.	1861	11	"	"	Vermont.	4 "	Dead.
Derby, Jordan	Shafsbury, Vt.	1849	16	Scarlet fever at 4 yrs.	1 un., 2 a'ts. par.	Mass.	5 "	A mechanic; married a deaf mute.
Derby, Olive A.	So. Weymouth, Mass.	1861	13	Congenital.	"	"	5 "	"
Derby, Wilson	Weymouth, "	1828	14	"	1 b., 2 s., 2 child.	"	3 "	"
Devoey, Ellen	Concord, "	1858	10	"		Conn.	4 "	Now a pupil.
Dewsnap, Clara	Lakeville, Conn.	1863	13	Disease at 12 yrs.		"	6 "	Dead.
Dickerman, Hannah B.	New Haven, "	1827	16	Illness at 1½ yrs.		Mass.	9 "	A mechanic.
Dickinson, Eliza A.	Essex, "	1844	9	Scarlet fever at 1 yr.		"	7 "	"
Dickinson, Wm. J.	Haverhill, Mass.	1855	10	Congenital.	1 sister.	Mass.	1 "	Married a deaf mute.
Dickson, Charles A. S.	Chelsea, "	1859	12	Sores in head at 1 yr.	1 sister. [rela's	"	2 "	A teacher; dead.
Diemuidre, Mary A.	Rockport, "	1848	25	Congenital.	1 sis. & 14 other	"	6 "	Assistant matron in the Am. Asylum.
Diemuidre, Frances	"	1848	21	"	1 sis.	"	6 "	Dead.
Dillingham, Abigail	Lee, "	1817	31	"		Maine.	2 "	Died at the Asylum.
Dillingham, Nancy	Pittsfield, "	1819	17	"		Conn.	1 "	"
Dodge, Adelaide R.	Westfield, Me.	1862	14	Scarlet fever at 4 yrs.		Asylum.	3½ "	"
Dooley, Winnie	Fitchburg, Mass.	1860	10	Congenital.	1 sister.	Maine.	6 "	"
Doollittle, Charlotte	New Haven, Conn.	1853	16	Sickness in infancy.	6 relatives.	Conn.	3 "	"
Doring, Edward	Boston, Mass.	1836	10	Unknown.		Mass.	4 "	Now a pupil.
Dorr, George	Hallowell, Mo.	1850	22	Congenital.		Maine.	4 "	Married a deaf mute; dead.
Dougherty, Charles	Hartford, Conn.	1863	10	"		Conn.	4 "	An India rubber boot-maker.
Doughty, Abigail	Brunswick, Me.	1825	14	Unknown.		Maine.	7 "	"
Douglass, Charles A.	Colchester, Conn.	1851	11	Canker rash at 6 mos.	3 cousins.	Conn.	7 "	"

List of Pupils--Continued.

NAMES.	RESIDENCE.	Time of Age	Cause of Deafness.	Deaf and Dumb relatives.	How sup'ed.	'Time under instruct	REMARKS.
Douglas, Charles F.	Westfield, Mass.	1833 11	Ulcers at 1 yr.		Mass. & F'ds.	7 yrs.	A mechanic.
Dow, Daniel W.	Charlton, "	1848 12	Scarlet fever at 6 mo.		Mass.	6 "	"
Downing, Jacob	Keenebunkport, Me.	1829 11	Illness at 1½ yrs.		Maine.	4 "	A mechanic.
Draper, Amos G.	No. Bennington, Vt.	1860 15	Typhus fever at 10 y.		Vermont.	2 "	"
Drew, Frank H.	Boston, Mass.	1865 8	Congenital.		Mass.	3 "	Now a pupil.
Drew, Polly	Duxbury, "	1829 34	"		Friends.	3 "	"
Driscoll, Julia A.	E. Boston, "	1865 12	Sickness at 3½ yrs.		Mass.	3 "	Now a pupil.
Drown, Carlos	Brownington, Vt.	1861 9	Congenital.	2 bro. & 1 cous.	Vermont.	5 "	"
Drown, John	"	1859 15	"	2 bro. & 1 cous.	"	5 "	"
Drown, Sampson	"	1859 17	"	2 bro. & 1 cous.	"	2 "	"
Drury, John	St. John's, N. B.	1831 21	Fever at 6 months.		Friends.	2 "	Now a pupil.
Dubec, Adeline	Orono, Me.	1866 9	Congenital.		Maine.	2 "	"
Dudley, Etta T. B.	Northampton, Mass.	1864 10	"		Friends.	6 "	"
Dudley, Jane W.	Paris, Me.	1857 8	"		Maine.	4½ "	"
Dudley, Julius	Stonington, Conn.	1818 13	Unknown.		Conn.	4½ "	A laborer.
Dummer, Caroline L.	Weld, Me.	1866 17	Canker rash at 5 yrs.		Maine.	4½ "	Now a pupil.
Dunbar, Abby Ann	Taunton, Mass.	1843 10	Congenital.		Mass.	4½ "	Dead.
Dunn, Martha	Chelmsford, "	1826 16	Lost hearing at 1 yr.		"	4 "	A carpet weaver.
Dunnell, Marilla	Buxton Center, Me.	1866 10	Swelling in head in inf.		Maine.	4 "	Now a pupil.
Dunning, Margaret,	Brunswick,	1834 18	Congenital.		"	4 "	"
Dunning, Mary	New Haven, Conn.	1828 16	Typhus fever at 4½ yrs.		Conn.	4 "	Married a deaf mute.
Duran, Edward	So. Boston, Mass.	1865 10	Congenital.	1 brother.	Mass.	4 "	Now a pupil.
Duran, Thomas	"	1865 12	"	"	"	4 "	"
Durbrow, Caroline B.	New York city.	1863 12	"		Friends.	6 "	"
Durkee, Harriet A.	Somers, Conn.	1846 9	Ulcers in head at 10 m.		Conn.	6 "	Married a deaf mute.
Dutton, Abigail F.	Craftsbury, Vt.	1846 15	Scarlet fever at 3 yrs.		Vermont.	6 "	A dress maker; dead.
Dyer, Eben P.	Thornadyke, Me.	1835 13	Illness in infancy.		Maine.	4½ "	A mechanic; married a deaf mute.
Earnest, William	Baltimore, Md.	1819 8	Congenital.		Congress.	11 "	A mechanic; married; dead.
Eastman, Elijah L.	Amherst, Mass.	1821 17	Unknown.		Mass.	9 mo.	Idiotic; dead.
Eastman, Rebecca	Bath, N. H.	1833 20	Lost hearing at 2 yrs.		N. Hamp.	4 yrs.	Married a deaf mute.
Eaton, Mary E.	E. Salisbury, Mass.	1863 13	Congenital.		F'ds. & Mass.	1½ "	Now a pupil.
Edgerly, Josiah	Greenland, N. H.	1839 24	Unknown.		N. Hamp.	1½ "	A mechanic.
Edson, Prudence A. J.	Hartford, Vt.	1838 15	Ulcers at 10 months.	1 sister.	Vermont.	5 "	Dead.
Edson, Rhoda A. M.	"	1838 9	" 8 "	1 sis. & 1 child.	"	7 "	Married a deaf mute.
Edwards, Eliza A.	Gilmanton, N. H.	1844 10	Scarlet fever at 4 yrs.		N. Hamp.	15 "	"

Edwards, Ellen	Kent, Conn.	1851 13	Congenital.	1851 13	6 ½ yrs.	A teacher; married a deaf mute.
Edwards, Josephus B.	Lexington, Ga.	1835 10	"	1835 10	5 "	"
Eldridge, Eunice A.	Harwich, Mass.	1852 15	Scarlet fever at 2 yrs.	1852 15	5 "	"
Ellis, Frank M.	Belgrade, Me.	1864 18	Brain fever at 1 ½ "	1864 18	2 "	Now a pupil.
Ellis, Henry S.	Thetford, Vt.	1847 22	Spotted fever at 1 ½ yr.	1847 22	6 "	Married a deaf mute.
Ellis, Tristram N.	Plymouth, Mass.	1858 13	Measles at 18 mo.	1858 13	6 "	"
Ely, Sabre E.	Haddam, Conn.	1855 11	Congenital.	1855 11	8 "	"
Emerson, Gertrude A.	Danby, Vt.	1864 10	Measles at 6 months.	1864 10	1 brother.	Now a pupil.
Emerson, John	Durham, N. H.	1829 14	Fever at 4 yrs.	1829 14	N. H. & F'ds. 8 ½ "	A nurseryman and seedsman.
Emerson, Philenia	Cambridge, Mass.	1826 10	Measles at 6 mo.	1826 10	5 ½ "	Married a deaf mute.
Emerson, William	Danby, Vt.	1852 10	"	1852 10	7 "	"
Emery, Mary A.	Indianapolis, Ind.	1856 21	Scarlet fever at 7 yrs.	1856 21	2 mo.	Married a deaf mute.
Emery, Ona C.	Poland, Me.	1847 12	Congenital.	1847 12	5 yrs.	"
Eno, Amanda	Tariffville, Conn.	1847 9	"	1847 9	6 "	Married a deaf mute.
Erbe, Herman	Southington, "	1865 9	Fall at 5 yrs.	1865 9	"	Now a pupil.
Esty, Caroline E. A. F.	Boxford, Mass.	1829 11	Scarlet fever at 4 ½ yrs.	1829 11	8 "	Married a deaf mute; dead.
Evans, Guy	Williamstown, Mass.	1825 15	Congenital.	1825 15	5 "	"
Evans, Oscar H.	So. Royalston, "	1861 12	Brain fever at 6 mo.	1861 12	Mass. & F'ds. 8 "	Married a deaf mute.
Everton, Amos H.	Mendon, "	1840 20	"	1840 20	Mass. "	Now a pupil.
Ewings, Alonzo H.	Whiting, Vt.	1826 13	"	1826 13	5 "	A mechanic.
Fahy, Bridget	Pittsfield, Mass.	1864 17	Congenital.	1864 17	4 "	"
Fahy, Thomas	"	1864 9	"	1864 9	2 bro. and 1 sis.	Now a pupil.
Fairbanks, Lucy A.	Dedham, "	1842 11	Fits at 1 year.	1842 11	2 sis. and 1 bro.	"
Fairman, Henry M.	Hartford, Conn.	1853 10	Congenital.	1853 10	6 "	"
Feeny, Patrick	Gorham, Me.	1848 12	"	1848 12	10 "	"
Felton, Ellen G.	Deerfield, Mass.	1847 10	"	1847 10	6 "	"
Fennell, James	Biddeford, Me.	1859 16	"	1859 16	2 mo.	Died at the Asylum.
Ferris, John	Westfield, Vt.	1862 11	"	1862 11	6 "	"
Field, Hubbard	Bernardston, Mass.	1834 14	Accident at 2 ½ yrs.	1834 14	5 yrs.	Now a pupil.
Fifield, Oscar W.	Deer Isle, Me.	1862 13	Congenital.	1862 13	Now a pupil.	"
Finnimore, Alfred H.	Bridgeport, Conn.	1851 11	Measles at 16 mo.	1851 11	7 "	"
Fish, Austin T.	Langdon, N. H.	1855 14	Brain fever at 1 ½ yrs.	1855 14	5 "	A mechanic.
Fish, Amariah P.	"	1855 15	"	1855 15	5 "	"
Fish, Charles	Danby, Vt.	1865 9	Measles at 2 yrs.	1865 9	Now a pupil.	"
Fisher, Charles T.	Harper's Ferry, Va.	1834 12	Congenital.	1834 12	4 "	A mechanic.
Fisher, Emeline	Boston, Mass.	1819 14	"	1819 14	6 "	Married a deaf mute.
Fisher, George E.	"	1862 15	Scarlet fever at 14 yrs.	1862 15	3 "	"
Fisher, James	Springfield, "	1828 13	Congenital.	1828 13	4 "	"
Fisk, Ferdinand	Holliston, "	1829 21	Scarlet fever at 1 yr.	1829 21	3 "	A teacher; married a deaf mute.
Fisk, Hannah W.	Shelburne, "	1851 10	Convulsions at 18 mo.	1851 10	5 "	A farmer; married.

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad.	Cause of Deafness.	Deaf and Dumb relatives.	How sup'ted.	Time under instruct.	REMARKS.
Fisk, Laura A.	Shelburne, Mass.	1848 10	Dropsy in head at 9 m.	1 sister.	Mass. & F'ds.	7 yrs.	
Fisk, Newton	Southport, Wis.	1845 8	Scarlet fever at 2 yrs.		Friends.	4 "	
Fisk, Thomas	Chesterfield, N. H.	1825 50	Unknown.		Himself.	1 "	A farmer; married.
Fitch, Francis G.	Lancaster, Mass.	1841 12	Illness at 1½ yrs.		Mass.	6 "	
Fitch, Henry H.	Preston, Conn.	1860 9	Congenital.		Conn.	5½ "	Now a pupil.
Fitzpatrick, Edward	Boston, Mass.	1847 8	Spotted fever at 3 yrs.		Mass.	"	Now a pupil.
Flag, Clarinda J.	Natick, "	1862 11	Scarlet fever at 6 yrs.		Vermont.	1 "	Idiotic.
Flanagan, Amy	Alburch, Vt.	1845 17	Dis. in head at 18 mo.		Maine.	4 "	A farmer; married a deaf mute.
Flanders, Frederick	Cornville, Me.	1846 18	Scarlet fever at 5 yrs.		Vermont.	4 "	
Fletcher, Amy	Rochester, Vt.	1828 19	Unknown.		Conn.	"	Now a pupil.
Foley, Bridget	Bristol, Conn.	1863 11	Congenital.	1 sister.	"	"	
Foley, Mary A.	"	1863 18	"	1 sister.	"	"	
Forbes, Charlotte	Berlin, Vt.	1829 14	Scarlet fever at 2 yrs.		Vermont.	4 "	Married a deaf mute; dead.
Forbush, Harriet	Stowe, Mass.	1833 12	Congenital.	1 son.	Mass.	5 "	Married a deaf mute.
Ford, John W.	Stratford, Conn.	1842 13	Scarlet fever at 2 yrs.		Conn.	5 "	A mechanic; married a deaf mute.
Foster, Delight	Danville, Vt.	1831 16	Whoop. cough at 1 yr.		Vermont.	1 "	Idiotic.
Foster, Joseph B.	Seekonk, Mass.	1834 13	Congenital.	2 sis., 3 sec. cos.	Mass.	6 "	A mechanic; thrice married to a deaf [mute.
Foster, Sarah W.	"	1838 14	"	1 bro. and 1 sis.	"	6 "	Married a deaf mute.
Foster, Sophia A.	"	1838 14	"	1 bro. and 1 sis.	Friends.	2½ "	Married a deaf mute.
Fowler, Parnell	"	1817 29	"	1 sis. & 1 cous.	"	6 "	Dead.
Fowler, Sophia	Guilford, Conn.	1817 19	"	1 sis. & 1 cous.	Maine.	6½ "	Married.
Frank, Francis E.	Gray, Me.	1849 11	Scarlet fever at 5 yrs.	2 cousins.	"	5 "	Dead.
Frank, Joseph W.	"	1846 17	Congenital.	1 cousin.	"	5 "	
Frank, Sarah J.	"	1846 19	"	1 cousin.	"	5 "	
Franklin, Ellen M.	Philadelphia, Penn.	1858 14	"	1 cousin.	Friends.	5 "	
Frazer, William	Charleston, S. C.	1836 13	"		So. Carolina.	6 "	Married a deaf mute; dead.
Freallick, James F.	Provincetown, Mass.	1865 11	Scarlet fever at 1 yr.		Mass.	"	Now a pupil.
Freeman, Matilda	Philadelphia, Penn.	1823 25	Congenital.		Friends.	2 "	
French, David	Oxford, Conn.	1858 8	Disease in head at 2 y.		"	3 mo.	Dead.
French, David B.	Hollis, N. H.	1834 13	Inflam. in head at 3½ y.		N. Hamp.	4 yrs.	Dead.
French, John G.	Epsom, "	1827 13	Illness at 5 yrs.		"	4 "	
Frisbee, Edward W.	Charlestown, Mass.	1866 11	Doubtful.		F'ds & Mass.	"	Now a pupil.
Frost, Edwin F.	Boston, "	1861 9	Scarlet fever at 18 mo.		Mass.	"	
Frost, Harriet E.	Bucksport, Me.	1865 12	"		Maine.	"	
Fuller, Aaron	Deerfield, Mass.	1818 9	Congenital.	1 brother.	F'ds & Mass.	6½ "	A farmer; married a deaf mute.

Fuller, Augustus	Deerfield, Mass.	1824 12	Congenital.	1 brother.	Mass.	4	4 yrs. Artist.
Fuller, Caroline D.	Putney, Vt.	1855 25	"	1 brother.	Vermont.	3	"
Fuller, Lucius L.	Hampton, Conn.	1828 21	"		Conn.	2½	"
Fuller, Lucy	Coventry, "	1835 13	"	1 bro. and 1 sis.	Maine.	5	Married a deaf mute; dead.
Fuller, Octavius W.	Turner, Me.	1852 11	"		"	7	A mechanic.
Fuller, Rodney J.	Putney, Vt.	1839 15	"	1 sister.	Vermont.	2	Dead.
Fuller, Warren	Coventry, Conn.	1831 15	"	2 sisters.	Conn.	4	A mechanic; married a deaf mute.
Fullerton, Alexander	Boston, Mass.	1819 15	Unknown.		Mass.	6	A mechanic.
Furrow, Edward B.	Westfield, "	1850 10	Congenital.	1 aunt.	"	6	A tailor.
Gage, John L.	Chicago, Ill.	1843 10	"		Friends.	7	"
Gale, Arthur F.	Charlton, Mass.	1863 10	Typhoid fever at 5 yrs.		Mass.		Now a pupil.
Gale, Caroline	Waltham, "	1825 18	Congenital.		"	5	Dead.
Gambol, John	S. Boston, "	1864 8	Scarlet fever at 4 yrs.		"		Now a pupil.
Gardner, Rosa	Greenville, Conn.	1859 8	Whoop. c. & fits at 6 m.		Conn.		"
Gardner, Wm. M.	Hardwick, Mass.	1864 9	Cold at 2 yrs.		Mass.		"
Garland, Ephraim	Conway, N. H.	1837 23	Congenital.	1 brother.	N. Hamp.	4	A mechanic.
Gatchell, George M.	Georgetown, Mass.	1852 14	Scarlet fever at 5 mo.		Mass.	6	"
Gates, Artemas	Worcester, "	1835 11	Disease in head at 1 yr.		"	6	"
Gavit, George	Westerly, R. I.	1850 12	Congenital.		Rhode Island.	4½	A mechanic; dead.
Geisler, Peter	So. Boston, Mass.	1852 11	"	1 sister.	Mass.	4½	A weaver; married a deaf mute.
Genet, William M.	Wethersfield, Conn.	1824 16	"		Friends.	2	A glass cutter.
Gerrard, George A.	Wilmington, N. C.	1839 11	"		"	5	A mechanic; married a deaf mute.
Gibson, Sarah M.	Westbrook, Me.	1850 10	Brain fever at 9 mo.		Maine.	6½	Married a deaf mute.
Giddings, Francis	Franklin, Conn.	1846 9	Congenital,		Conn.	2½	Died at the Asylum.
Gilbert, Charles T.	Watertown, "	1852 10	Scarlet fever at 17 mo.		"	7	Married; a spinner.
Gilbert, Elizabeth	Derby, "	1853 12	Nervous fever at 2 yrs.	1 sister.	Friends.	8	"
Gilbert, Harriet	"	1845 12	Erysipelas at 1 year.	1 sister.	F'ds & Conn.	6½	Married a deaf mute.
Gilbert, Mary	Hebron, Conn.	1817 21	Congenital.	3 bro. and 1 sis.	Friends.	4	Dead.
Gilman, Henry G.	Tamworth, N. H.	1845 17	Scarlet fever at 3½ yrs.		N. Hamp.	5	Married.
Gilpatrick, Ellen M.	Bath, Me.	1847 13	Scrofula at 2 years.		Maine.	6	"
Glass, Susan	Woolwich, "	1831 16	Congenital.	1 sister.	"	4	Dead.
Gleason, Reuben	Dorchester, Mass.	1831 11	Unknown.		Mass.	4	"
Glidden, Clara M.	Pittsford, Me.	1852 14	Congenital.		Maine.	6	"
Glines, Joanna	Bethel, "	1858 22	Scarlet fever at 2 yrs.		"	6	Married a deaf mute.
Glyn, James	Hartford, Conn.	1850 10	Congenital.		Conn.	8	"
Glysson, Eunice M.	E. Williamston, Vt.	1831 21	Spotted fever at 5 yrs.	1 brother.	Friends.	3	"
Goldsmith, Eliza M.	Chelsea, Mass.	1853 18	Congenital.	1 sister.	Mass.	6	"
Goldsmith, William H.	"	1854 8	"	1 cousin.	"	7	A book-binder.
Gomez, Sarah S.	Newburyport, "	1836 8	"		F'ds & Mass.	9	"
Goodrich, Henry	Worthington, "	1830 15	Spotted fever at 1 yr.		Mass.	4	A mechanic; married.

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time Ad. Age	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruc	REMARKS.
Goodrich, Laurette	Chatham, Conn.	1830 20	Dis. in the head at 1 y.		Conn.	4 yrs.	A dress-maker; married.
Goodrich, Lucy J.	Cavendish, Vt.	1834 24	Spotted fever at 3 yrs.		Vermont.	4 "	"
Goodwin, Asa	Middleton, N. H.	1841 27	" " 4 "		N. Hamp.	3 "	Married a deaf mute.
Gordon, Mary H.	Hollis, Me.	1840 20	Illness at 3 yrs.		Maine.	5 "	"
Gorman, Benjamin	Stonington, Conn.	1860 14	Congenital.		Conn.	2 "	"
Gough, Benjamin	E. Weymouth, Mass.	1856 9	Bruin fever at 18 mo.		Mass.	5 "	A farmer; married a deaf mute.
Gove, Albert	Henniker, N. H.	1835 21	Illness at 6 yrs.		N. Hamp.	4 "	"
Gowing, Harriet	Danvers, Mass.	1843 9	Scarlet fever at 1 yr.		Mass.	5 ½ "	Married a deaf mute; dead.
Gowing, Nancy	Boston, "	1826 13	Illness at 2 ½ yrs.		N. Hamp.	1 ½ "	Died at the Asylum.
Graham, Frances E.	Meredith, N. H.	1843 10	Measles at 2 yrs.		N. Hamp.	4 ½ "	Now a pupil.
Graham, Samuel	Newark, N. J.	1866 12			N. Jersey.	4 "	A mechanic; married a deaf mute.
Grant, Hiram	East Windsor, Conn.	1838 13	Calomel.		Friends.	4 "	Now a pupil.
Grant, Wentworth	Warner, N. H.	1841 22	Fever at 2 ½ yrs.		Vermont.	4 "	A farmer; married a deaf mute.
Gray, Leonora C.	New Haven, Conn.	1864 12	Sickness in infancy.		"	6 "	"
Gray, William	Glover, Vt.	1831 23	Dis. in head at 3 mo.		Friends.	5 "	"
Green, Albert A.	St. Albans, Vt.	1855 13	Scarlet fever at 2 ¼ yrs.		Conn.	6 "	"
Green, Cornelia E.	Lawrence, N. J.	1821 10	Congenital. [at 6 mo.		Vermont.	3 ½ "	Idiotic.
Green, Daniel	Griswold, Conn.	1849 13	Meas. & whoop. cough		Mass.	2 mo.	"
Green, Joseph	St. Albans, Vt.	1860	Congenital.		Rhode I.	2 yrs.	"
Green, Maria	Warwick, Mass.	1829 16		1 sister.	Maine.	7 "	Married a deaf mute.
Green, Samuel G.	Hopkinton, R. I.	1849 10	"	1 brother.	"	5 "	A mechanic.
Green, Samuel T.	Waterford, Me.	1855 12	"	1 uncle.	"	6 "	A seamstress.
Green, Sarah A.	"	1846 10	Ulcers in head at 3 yrs.		N. Hamp.	5 "	Twice married a deaf mute.
Greenlaw, Rebecca	Deer Isle, "	1846 9	Congenital.		Maine.	5 "	Married.
Greenleaf, Sarah A.	Pittsfield, N. H.	1853 17	Scarlet fever at 9 mo.		Conn.	5 "	Married a deaf mute.
Greenwood, Hannibal	Farmington, Me.	1842 12	" " 6 "		Conn.	5 "	Idiotic.
Greenwood, Sarah J.	"	1842 15	Illness at 11 mo.	1 sister.	Vermont.	2 mo.	"
Gregory, Frances A.	Norwalk, Conn.	1837 14	Dis. in head at 2 ½ yrs.	1 brother.	Conn.	8 "	Married a deaf mute.
Grinnell, George F.	Pomfret, "	1849 10	Congenital.		Friends.	2 mo.	Idiotic.
Griswold, Mary	Enosburgh, Vt.	1845 8	Scarlet fever at 6 mos.		Conn.	4 yrs.	"
Griswold, Ralph	Simsbury, Conn.	1826 17	Illness at 1 year.		Vermont.	3 "	A farmer.
Grover, Emeline A.	Bethel, Me.	1838 14	Scarlet fever at 9 yrs.		Maine.	6 mo.	Dead.
Grush, John E.	Boston, Mass.	1856 15	Measles at 18 mo.		Mass.	8 yrs.	"
Gully, Edward	Halifax, N. S.	1849 10	Congenital.		Nova Scotia.	3 "	"
		1856 13	Measles at 15 mos.				

Gurridge, Emeline	Horton, N. S.	1839	9	Congenital.	1	Friends.	2	yrs.
Hackett, Horatio N.	Minot, Me.	1829	11	Drop'y in head at 1½ y.	1	Maine.	4	"
Hadley, James	Waltham, Mass.	1839	14	Congenital.	1	Mass.	7	"
Hadley, Sarah	Canaan, N. H.	1851	17	Scarlet fever at 4 yrs.	1	N. Hamp.	5	"
Hagerty, John	Concord, Mass.	1857	17	" " 7	1	Mass.	4½	"
Haley, Augustus	Orrington, Me.	1842	25	Illness at 3 years.	1	Maine.	3	"
Haley, Nancy S.	Tuftonborough, N. H.	1846	12	Inflam. in head at 2 y.	1	N. Hamp.	6	"
Haley, Tristram	Topsham, Me.	1837	14	Congenital.	1	Maine.	2	"
Hall, Charles P.	Belfast, Me.	1819	13	Became deaf at 2 yrs	1	Mass.	6	"
Hall, Elizabeth	Portland, Me.	1862	9	Rheumatic fev. at 2½ y.	1	Maine.	2	"
Hallett, Asenath L.	Westminster, Vt.	1830	16	Congenital.	1	Vermont.	3	"
Halsey, Waldron H.	Newark, N. J.	1863	10	Fright & cong. at 6 m.	1	F'ds & N. J.	4	"
Ham, John	Farmington, N. H.	1833	19	Lost hearing at 3 yrs.	1	N. Hamp.	4	"
Ham, Lucy	Danvers, Mass.	1847	24	Congenital.	1	Mass.	5	"
Hamlin, Nancy E.	Buxton, Me.	1845	9	"	1	Mass.	4	"
Hammett, Caroline C.	Chilmark, Mass.	1853	12	"	1	Maine.	5	"
Hammond, Frances P.	Brookfield, Mass.	1827	8	"	1	Mass.	4	"
Hammond, Phebe P.	"	1827	8	"	1	"	6	"
Hancock, Susan M.	Worcester, "	1827	10	Congenital.	1	"	3	"
Hancock, Anthony H.	Charlotte, Va.	1847	13	Salt rheum in infancy.	1	Friends.	5	"
Hancock, Martin	"	1827	26	Lost hearing at 1 yr.	1	Friends.	2	"
Hanchett, Ann D.	"	1827	24	"	2	"	2	"
Hanchett, Emeline	Canaan, Conn.	1844	11	Mumps at 1½ yrs.	1	Conn.	6	"
Hannan, Daniel	Salisbury, ".	1823	14	Spotted fever at 4 yrs.	1	Friends.	5	"
Hanson, Joseph W.	Northfield, Vt.	1852	9	Brain fever at 2 yrs.	1	Vermont.	6	"
Hardy, Jane L.	Barrington, N. H.	1860	8	Congenital.	1	N. Hamp.	6	"
Harrington, Morton E.	Boston, Mass.	1854	11	"	3	Mass.	7	"
Harrington, Sarah J.	Upton, "	1857	11	"	3	"	7	"
Harris, Alvah H.	Edgcombe, Me.	1859	11	Sores in head at 2 yrs.	1	Maine.	6	"
Hartshorn, Anna L.	Neponset, Mass.	1863	10	Fever at 2 yrs.	1	Mass.	3	"
Hartshorn, Sylvanus	Boston, "	1865	10	Scarlet fever at 11 mo.	1	"	6	"
Hartt, Cora E.	Dover, "	1850	14	Fall at 2 years.	1	"	3	"
Harvey, Francis	Auburn, "	1859	11	A fall at 6 years.	1	"	6	"
Harwell, Harrison	East Haddam, Conn.	1850	21	Congenital.	1	Conn.	2	"
Haskell, Elizabeth L.	Prattville, Ala.	1848	16	"	1	Friends.	2½	"
Haskell, George W.	Newburyport, Mass.	1829	16	Accident at 6 yrs.	4	Mass.	4	"
Haskell, Mary E.	Medford, "	1845	11	Congenital.	1	"	5	"
Hastings, Daniel	Portland, Me.	1858	11	Scarlet fever at 5 yrs.	1	Friends.	8	"
Hastings, Oliver F. W.	Greenfield, Mass.	1839	15	Fever at 2½ yrs.	1	"	5	"
Hasty, Albert J.	Gilmanton, N. H.	1821	15	Illness at 7 years.	1	"	1½	"
	Winslow, Me.	1861	16	Scarlet fever at 10 yrs.	1	Maine.	5	"

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad. Age.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Hatch, Harvey	Washington, Ct.	1826 18	Ulcers in head at 1 yr.	2 relatives.	Friends.	4 yrs.	
Hathaway, Sylvia W.	Sharon, Vt.	1856 16	Congenital.		Vermont.	6½ "	A mechanic; married a deaf mute.
Hawks, Nehemiah M.	Goshen, Mass.	1824 18	Palsy at 1 yr.		Friends.	2½ "	
Hawley, Abigail	Bozrah, Conn.	1835 14	Congenital.		Conn.	1 "	
Hawley, Levi R.	N. Amherst, Mass.	1865 10	"	1 bro. and 1 sis.	Mass.		Idiotic.
Hawley, Lewis N.	"	1865 13	"	1 " 1 "	"		Now a pupil.
Haws, Elizabeth	Lincoln Co., Ga.	1840 23	Disease in head at 6 m.	1 nephew.	Georgia.	3½ "	Now a pupil.
Hayden, Eveline	Boston, Mass.	1825 12	Unknown.		Mass.	5½ "	Married.
Hayden, Othello D.	Stoughton, "	1862 11	Scar. fev. at 2½ yrs.		"		
Hayward, Frederick	S. Easton, "	1859 10	Sores in ears in infan.	1 sis. & 1 cous.	Friends.	4 "	
Hayward, Laura A.	"	1857 13	Scarlet fever at 2 yrs.	1 bro. & 1 cous.	"	6 "	
Hazard, Enoch	Newport, R. I.	1834 19	Scarlet fever at 2 yrs.		"	4½ "	A farmer.
Head, Thomas N.	Hookset, N. H.	1825 12	Fever at 5 years.		"	5 "	A farmer; married a deaf mute.
Halfpenny, Martin	Waterbury, Conn.	1864 9	Fever at 6 months.		Now a pupil.		
Hemenway, Josephine	Worcester, Mass.	1861 10	Congenital.		Conn.	2½ "	
Herrick, Caleb H.	Haverhill, Mass.	1859 9	Sores in head, at 1 yr.		Mass.	7 "	
Herron, William S.	Montreal, Canada.	1844 9	Dropsy in head at 1½ y.		Friends.	4½ "	
Hiehens, Mary W.	Wellfleet, Mass.	1860 9	Scarlet fever at 1 yr.	1 brother.	Mass.		Now a pupil.
Hickok, William D.	St. Albans, Vt.	1855 19	Scarlet fever at 6 yrs.	Aunt and 1 sis.	Vermont,	4½ "	A wool-sorter; married.
Hicks, Henry F.	Danville, Me.	1852 18	Congenital.	" " 1 bro.	Maine.	7 "	Married a deaf mute.
Hicks, Martha A.	"	1827 14	Illness at 2 years.		"	3 "	"
Higley, Harriet	Canton, Conn.	1847 8	Scrofula at 2½ yrs.		Conn.	6 "	"
Hildreth, Mary E.	Lancaster, Mass.	1823 9	Typhus fever at 1½ yrs.		Mass.	7 "	
Hill, Emily	Catskill, N. Y.	1846 13	Typhus fever at 1½ y.		Friends.	6 "	
Hill, Marion E.	Doughlass, Mass.	1864 14	Canker rash at 12 yrs.		Mass.	6 "	
Hill, Willie L.	Athol Depot, "	1825 15	Unknown.		Friends.		Now a pupil.
Hiller, Charles	Nantucket,	1829 22	Congenital.		Mass.	4 "	A farmer.
Hillman, Mary	New Bedford, "	1828 15	Illness at 2 years.	1 child.	"	4 "	Married a deaf mute.
Hine, Isaac	Middlebury, Conn.	1846 8	Congenital.	Parents & 1 cos.	Conn.	3½ "	A mechanic; married a deaf mute.
Hine, James	Waterbury, "	1858 12	"		Conn.	8 "	A mechanic.
Hines, Esther C.	Fall River, Mass.	1831 20	Illness at 2 years.		Mass.	6 "	
Hipkins, William	Alexandria, Va.	1818 23	Congenital.		Friends.	4 "	A mechanic.
Hitchcock, Irene	Southington, Ct.	1855 12	Congenital.		"	4 "	
Hobbs, Grace E.	Weston, Mass.	1826 26	Lost hearing at 3 yrs.		Mass.	7 "	
Hobbs, John D.	N. Hampton, N. H.				N. Hamp.	2 "	A mechanic.

Hobin, Kate	Boston, Mass.	1851	8	Congenital.	1	sister.	Mass.	7 1/2 yrs.	
Hobin, Margaret M.	"	1857	10	Congenital.	1	"	"	7	
Hobson, Anna M.	Salem,	1834	12	Illness at 1 1/2 years.			"	5	"
Hogan, Anne M.	Andover,	1852	9	S. fev. & meas. at 16 m.			"	5	"
Hogan, James	N. Providence, R. I.	1857	8	Congenital.			R. I.	5	"
Holden, Ermina M.	Northfield, Mass.	1850	12	"	1	cousin.	Mass.	5	Married a deaf mute.
Holden, Mary Ann	Boston,	1828	13	Typhus fever at 1 1/2 yrs.	1	"	"	5	Married a deaf mute; dead.
Holmes, Agnes E.	"	1846	8	Congenital.	1	brother.	Mass. & F'ds.	9	Married a deaf mute.
Holmes, Andrew F.	Portland, Me.	1834	14	Measles at 2 yrs.			Maine.	6	"
Holmes, Geo. A.	E. Boston, Mass.	1846	8	Congenital.	1	sister.	Mass. & F'ds.	9	A printer.
Holmes, Joseph B.	Charleston, S. C.	1832	15	"	1	"	F'ds & S. C.	5 1/2	A mechanic; insane.
Holmes, Sarah W. C.	"	1832	13	"	1	bro. & 3 child.	"	4 1/2	Married a deaf mute.
Holt, Eliphalet M.	Andover, Mass.	1819	22	A fall in infancy.			Mass.	7	Married a deaf mute.
Homer, George	Boston,	1824	12	Congenital.			Friends.	6	Married; dead.
Hooper, Jane	Gloucester,	1840	14	Congenital.			Mass. & F'ds.	6	"
Hotchkiss, John B.	Seymour, Conn.	1859	14	Scarlet fever at 11 yrs.			Conn.	5	"
Hough, Edmund	Berlin,	1828	15	Fever at 4 years.			"	4	"
Houghton, Alexander	Grafton, Mass.	1836	12	Inflam. in head at 8 m.			Mass.	6	A shoemaker; married a deaf mute.
Houghton, Louis A.	Springfield,	1857	11	Scarlet fev. at 2 1-2 yrs.			Mass.	4	A mechanic.
Howard, Nancy	Anson, Me.	1849	9	Congenital.	1	brother.	Mass.	6	Married a deaf mute.
Howard, Samuel B.	North Anson, Me.	1853	10	"	1	sister.	Maine.	5 1/2	"
Howe, Delphus B.	No. Brookfield, Mass.	1854	10	"	1	brother.	Mass.	7	"
Howe, Eldora M.	Marlboro',	1851	18	Illness in infancy.			Maine.	5	A carpenter.
Howe, Henry M.	No. Brookfield,	1856	10	Congenital.			"	7	Now a pupil.
Howe, Mary	Windsor, Me.	1851	18	Illness in infancy.			Maine.	4	A boot-maker.
Howe, Samuel S.	Marlboro', Mass.	1828	16	Congenital.			Mass.	5	A laborer.
Howell, Mary H.	Philadelphia, Pa.	1818	37	"	1	brother.	Friends.	4 1/2	Dead.
Howell, Thomas H.	"	1817	25	"	1	sister.	"	3	A mechanic; dead.
Hoyl, Caleb W.	Hoylsville, N. C.	1833	25	Unknown.			"	1 1/2	A farmer.
Hubbard, David	Sunderland, Mass.	1838	11	"			Mass.	4	Idiotic.
Hudson, George E.	Fitchburg,	1859	14	Scarlet fever at 7 yrs.	1	cousin.	"	6	mo.
Hulett, Alta	Pawlett, Vt.	1845	15	Congenital.	2	bro. and 1 sis.	Vermont.	2	Dead.
Hulett, Edson	"	1852	11	"	1	bro. and 2 sis.	"	7	Married a deaf mute.
Hulett, Martha J.	"	1854	11	"	2	bro. and 1 sis.	"	8	"
Hulett, Seth	"	1846	12	"	2	sis. and 1 bro.	"	5	Dead.
Humphrey, Elias B.	Farmington, Conn.	1845	14	Scarlet fever at 16 mo.			Conn.	4	"
Hunt, Hiram P.	Gray, Me.	1834	11	Disease in head at 4 y.			Maine.	4	A farmer; married a deaf mute.
Hunter, Harriet	Clinton,	1834	12	Ulcers in head at 4 1/2 y.			"	4	Married a deaf mute; dead.
Hull, Ida A.	Plainville, Conn.	1863	8	Scarlet fever at 2 yrs.	2	bro. and 1 sis.	Conn.	4	Now a pupil.
Huntington, Almira S.	Walpole, N. H.	1854	9	Congenital.	1	sister.	N. Hamp.	6	A weaver.

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad. Age	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Huntington, Sophia M.	Walpole, N. H.	1852 10	Scarlet fever at 1 yr.	1 sister.	N. Hamp.	7 yrs.	A dress-maker.
Huntton, Laura A.	Hartford, Vt.	1835 13	Whoop. cough at 9 m.	1 brother.	Vermont.	5 "	Married a deaf mute.
Hurd, Cathleen	Stoneham, Mass.	1854 12	Congenital.	1 sister.	Mass. & F'ds.	8 "	An artist.
Hurd, William	"	1855 9	"		"	6 "	
Hurley, Michael	Newton, Vt.	1858 13	"		"	5 "	
Huston, Susan W.	Walden, Vt.	1834 21	"		Vermont.	4 "	Died in the Asylum.
Hyde, Mary D.	Baltimore, Md.	1818 19	Illness in infancy.	1 brother.	Friends.	4 "	Dead.
Hynds, Alice	Hartford, Conn.	1852 9	Congenital.		Conn.	8 "	
Ide, Lemuel	Ida, Cal.	1852 15	Fever at 1 1/2 years.		Friends.	5 "	
Ingham, Eldridge	Groton, Conn.	1828 13	Illness at 1 year.	1 sister.	Conn.	3 1/2 "	A lock-maker.
Ingham, Lewis S.	Springfield, Mass.	1853 11	Congenital.		Mass.	8 "	Married.
Ingraham, Margaret	Camden, Me.	1825 12	"	1 brother.	Maine.	4 "	A seamstress.
Ingraham, Marie A.	Springfield, Mass.	1851 11	"		Mass.	8 "	A mechanic.
Irwin, John	Sheldon, Vt.	1847 17	"		Vermont.	5 "	
Isham, Annie T.	Brooklyn, N. Y.	1859 18	Infla'n in head at 1 yr.	2 b., 2 unc., 2 c.	Friends.	4 "	
Jack, Alfred	Thorndike, Me.	1858 11	Congenital.	2 uncles.	Maine.	6 "	Name changed to Chas. Augustus
Jack, Augustus	Belfast,	1845 12	"	1 bro. & 2 neph.	"	5 "	A farmer.
Jack, Daniel	Jackson, "	1825 22	"	2 b., 2 unc., 2 c.	"	4 "	
Jack, Dunbar	"	1858 8	"	1 sis. & 1 cous.	"	6 "	
Jack, Levi	Dixmont, "	1849 14	"	1 bro. & 1 cous.	"	6 1/2 "	
Jack, Sally	"	1857 25	"	1 bro. & 2 neph.	"	2 "	A farmer.
Jack, William	Jackson, "	1831 22	"		"	4 "	
Jackson, Ansel A.	W. Bridgewater, Mass.	1852 9	Scrofula at 1 year.		Mass.	6 "	
Jackson, Benjamin B.	Otisfield, Me.	1842 13	Scarlet f. at 3 1/2 years.		Maine.	5 "	
Jackson, Sally	Boston, Mass.	1819 12	Illness at 2 years.		Mass.	6 "	Married; dead.
Jackson, William	Norwich, Conn.	1858 11	Typhoid fever at 4 yrs.	1 cousin.	Conn.	4 1/2 "	
James, William H.	Columbus, Ga.	1835 13	Congenital.		Georgia.	5 "	A mechanic.
Janes, George B.	Wilton, Conn.	1844 12	"	1 sis. and 1 bro.	Conn.	6 "	Dead.
Jellison, Isaac H.	Monroe, Me.	1848 10	"	2 brothers.	Maine.	5 "	A painter.
Jellison, Lucy J.	"	1846 10	"	1 bro. and sis.	"	5 "	
Jellison, Simon	Monroe, Me.	1865 14	"		"		Now a pupil.
Jenckes, Ruth A. M.	Sturbridge, Mass.	1837 12	"		Mass.	5 "	Married a deaf mute.
Jenks, Matilda	Portsmouth, N. H.	1862 10	Scarlet fever in infancy.		N. Hamp.	3 "	
Jenne, David	Hartland, Vt.	1837 29	Fits at 5 years.		Vermont.	4 "	A farmer; married.
Jewett, Belinda	Lynn, Mass.	1832 21	Scarlet fev. at 2 yrs.		Mass.	4 "	Married a deaf mute.

[Brown.]

Jewett, George	Derry, N. H.	1829 15	Congenital.		N. Hamp.	1	yrs.	A laborer.
Jocelyn, Jonathan	Ware, Mass.	1837 14	Fever at 1½ years.		Mass.	5	"	A mechanic.
Johnson, Benjamin A.	Middletown, Conn.	1835 13	Dropsy in head at 2 y.		Conn.	5	"	A farmer; dead.
Johnson, Clarine	Southbury, "	1849 8	Unknown.		"	7½	"	"
Johnson, Clarissa	Newtown, "	1830 15	Spotted fever at 4 yrs		"	4	"	A seamstress.
Johnson, Dolly	Wendell, Mass.	1827 13	" " 2½	1 sister.	Mass.	4	"	Married a deaf mute.
Johnson, Emily	Lima, N. Y.	1841 12	Congenital.		Friends.	6	"	Now a pupil.
Johnson, George D.	Gill, Mass.	1862 10	Whoop. cough at 3 yrs.	1 "	Mass.	6	"	Married a deaf mute.
Johnson, Gertrude	Lima, N. Y.	1841 11	Congenital.		Friends.	4	"	Dead.
Johnson, Melissa	Bozrah, Conn.	1830 14	" "		Conn.	4	"	A laborer.
Jones, Reuben	Portland, Me.	1829 14	" "		Maine.	4	"	"
Jones, Robert P.	Falmouth, "	1840 12	Illness at 1½ yrs.		Mass.	5	"	A mechanic; married a deaf mute.
Jordan, Hannah M.	Wellfleet, Mass.	1863 13	Scarlatina at 7 yrs.		Dead.	3 mos.		"
Jordan, Horace	Columbia, N. H.	1833 21	Disease in head.		N. Hamp.	3	yrs.	A mechanic; married a deaf mute.
Jordan, Temperance	Oglethorpe Co., Ga.	1844 11	Congenital.		Georgia.	2	"	Married a deaf mute.
Joslin, Adelaide V.	Worcester, Mass.	1854 10	" "	1 sis. and 1 bro.	Mass.	7	"	"
Joslin, Sarah L.	Hartford, Conn.	1855 8	" "	1 "	Conn.	8	"	Now a pupil.
Joy, Nancy E.	Lubec, Me.	1863 9	Fall & sickn's at 3 yrs.	1 sister.	Mass.	5	"	"
Josselyn, Andrew P.	East Foxboro', Mass.	1838 16	Congenital.	1 brother.	Maine.	3	"	A teacher.
Kavanaugh, Maria L.	Hamtsville, Ala.	1853 18	" "	1 sister.	Friends.	4	"	"
Kavanaugh, Richard P	"	1852 10	" "		Mass.	6½	"	"
Keating, Michael	Worcester, Mass.	1859 12	Disease in head at 1 yr.		"	6	"	"
Keefe, Thomas	Lawrence, "	1847 15	Congenital.		"	6	"	"
Keen, Allen	Fair Haven, "	1858 13	" "		"	5	"	A shoemaker.
Kelcher, William	Lynn,	1855 12	Scarlet fever at 7 mos.		Nova Scotia.	4¼	"	[dead.]
Kelley, Francis	Halifax, N. S.	1831 17	Fever at 1 year.		Vermont.	4	"	A mech.; twice married a deaf mute;
Kelly, Nelson	West Rutland, Vt.	1854 19	Congenital.		Mass.	4	"	Married a deaf mute.
Keltie, Eleanor J.	Charlestown, Mass.	1865 15	Scarlet fever at 2½ yrs.		Maine.	2	"	Now a pupil.
Kendall, Phillip	Whitefield, Me.	1840 28	Congenital.	2 sisters.	Vermont.	5	"	Married a deaf mute.
Kendall, Polly	Weathersfield, Vt.	1840 31	" "	2 "	"	5	"	" "
Kendall, Sarah	"	1840 30	" "	2 "	Conn.	7	"	A carriage maker.
Kendall, Sophia	Plainfield, Conn.	1850 10	Measles at 2½ years.		Friends.	3½	"	"
Kennedy, Charles A.	Newcastle, Me.	1859 11	Scarlet fever at 3 yrs.		Maine.	5	"	A mechanic; married.
Kennick, Frederick O.	Hamden, "	1845 16	" "		Mass.	5	"	A farmer; married a deaf mute.
Kennison, George B.	Greenfield, Mass.	1840 18	Congenital.		N. H. & Fd's.	5	"	A gardener; married a deaf mute.
Kenny, Henry E.	Chester, N. H.	1825 12	Spotted fever at 2 yrs.		N. H.	4	"	A mechanic; married a deaf mute
Kent, George	Acworth, "	1829 21	" " 5 yrs.		Friends.	1	"	Married; dead.
Keyes, Lauriston	Watertown, N. Y.	1823 13	" " 5 yrs.		Conn.	1	"	A housekeeper.
Keyes, Mariette W.	Somers, Conn.	1831 18	Congenital.					

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad.	Age.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Kilbourn, Almira	Claremont, N. H.	1843	10	Congenital.	1 sister.	N. Hamp. Mass.	2½ yrs.	Died at the Asylum.
Kitham, John H.	Manchester, Mass.	1846	11	"		Mass & F'ds.	2½ "	
Kinball, Augusta	Boston, "	1819	10	"		Vermont.	7 "	
Kinball, Charles M.	Bellows Falls, Vt.	1856	16	Scarlet fever at 2 yrs.		N. Hamp.	8 mos.	A farmer; married a deaf mute.
Kinball, Eliphalet M.	Lyme, N. H.	1831	15	Spotted fever at 4½ yrs.		"	4 yrs.	
Kinball, Hannah C.	West Rumney, "	1845	15	Inflam. in head at 6 m.		"	4 "	Married a deaf muta.
Kinball, Ozro	Orange, "	1825	13	Lost hearing at 3½ yrs.	1 sister.	Vermont.	4 "	
Kindrew, Anna	Guilford, Vt.	1860	16	Congenital.		N. Jersey.	4 "	Now a pupil.
King, James H.	Middletown Point, N.J.	1865	13	"		Mass.	6 "	Married.
King, Sarah E.	Middleborough, Mass.	1857	8	"		"	6 "	A mechanic; married a deaf mute.
Kingsley, Isabella	Westhampton, "	1833	13	"		Vermont.	6 "	
Kinsman, Oscar	Sharon, Vt.	1849	13	Scarlet fever at 8 yrs.		Mass.	6 "	
Kirby, Hannah	Dartmouth, Mass.	1843	17	Congenital.	Mother & uncle.	F'ds. & N. J.	4 "	
Kirk, David J.	Stroudsburg, Pa.	1860	12	"		Vermont.	6 "	Married a deaf mute.
Knapp, Harriet	Northfield, Vt.	1843	16	Scarlet fever at 5 yrs.		Friends.	4 "	Now a pupil.
Knapp, Sophia A.	Winchester, N. H.	1861	17	Brain fever at 6 yrs.		Mass.	5 "	A farmer; married.
Knight, Cyrus L.	West Boylston, Mass.	1825	16	Illness at 2½ yrs.		Friends.	3½ "	A mechanic; married a deaf mute.
Knowles, Caleb	South Kingston, R. I.	1833	18	Ulcers in head in infan.		Dead.	2½ "	
Knowles, Isaiah	Truro, Mass.	1828	16	Fever at 4½ yrs.		A farmer; married a deaf mute.	6 "	
Knox, Eli W.	Blanford, "	1825	16	" " 5½ yrs.		Now a pupil.	6 "	
Kollock, Royal T.	Canton, "	1822	12	Illness at 1 year.		Vermont.	4 "	
Lackie, Mary	Peacham, Vt.	1848	12	Scarlet fever at 7 yrs.	1 unc., 1 aunt.	Conn.	4 "	
Ladd, Amos A.	East Haddam, Ct.	1866	10	Congenital.		Vermont.	4½ "	
Ladd, Celia M.	Ellington, "	1839	14	"		Mass.	6 "	
Ladd, Seth W.	Brighton, Vt.	1860	11	Scarlet fever at 18 mo.		Dead.	6 "	
Ladue, Edward	St. Albans, "	1864	10	Congenital.	3 sis. and 1 bro.	Mass.	1 "	Married a deaf mute.
Lafferty, Ellen	Pawtucket, Mass.	1856	16	"	3 " 1 "	A carpenter.	5 "	
Lafferty, Margaret	"	1847	19	"	1 sister.	Friends.	5 "	
Lafferty, Mary A.	"	1851	16	"	1 brother.	Conn.	4 "	Now a pupil.
Lake, George R.	Lowell, Mass.	1857	11	"		A mechanic; married a deaf mute.	3 "	
Lake, Sarah E.	"	1858	10	"		A mechanic.	6 "	
Lally, John	So. Boston, "	1866	17	"		Married a deaf mute.	4 "	
Lamb, Washington	Groton, Conn.	1830	16	Illness at 1 year.		A mechanic.	3 "	
Lambert, Matthew	Norfolk, Va.	1817	10	Small pox at 1½ years.		Married a deaf mute.	6 "	
Lambert, Prudence D.	Chilmark, Mass.	1852	15	Infla'n in head at 7 m.			6 "	

	New Canaan, Conn.	1844	12	Illness at 16 mos.		Conn.	6	yrs.
Lambert, William	New Canaan, Conn.	1832	13	" " 1 year.		Vt. & F'ds.	6	" A mechanic; dead.
Lane, Lucius H.	New Haven, Vt.	1837	17	Congenital.		Friends & Me.	1 3/4	" A mechanic.
Langdon, Darwin	Kennebunkport, Me.	1828	17	"		Friends.	6 1/2	" A merchant; twice married.
Langwin, Charles F.	Quebec, Canada East,	1834	28	Congenital.		Friends.	1 1/2	"
Langley, Joshua	Newport, R. I.	1841	23	Congenital.	1 brother.	F'ds & R. I.	5	" Married a deaf mute.
Lanphier, Charles	"	1841	28	Congenital.	2 sis. & 1 cous.	"	3	mo.
Lanphier, Fanny	Hopkinton, "	1857	10	Congenital.	2 sis. & 1 cous.	"	4	yrs.
Lanphier, Maria	"	1850	9	"	1 bro. and 1 sis.	Maine.	6 1/2	" A mechanic.
Larabee, Charles S.	Bangor, Me.	1850	15	"	1 sister & 1 bro.	Maine.	5 1/2	" Married a deaf mute.
Larabee, John	"	1850	15	"	2 brothers.	Vermont.	"	Now a pupil.
Larabee, Phebe J.	"	1856	17	"		F'ds & Mass.	8	"
Laplant, Peter	West Milton, Vt.	1848	9	Congenital.		Mass.	5	" Married.
Latham, Galen A.	E. Bridgewater, Mass.	1846	14	Congenital.		Maine.	2	"
Laughlin, Margaretta	Boston, "	1831	17	Ulcers in infancy.		Mass.	"	Now a pupil.
Lawrence, Joseph	Sandwich, "	1829	22	Congenital.	1 bro. & 1 cous.	Conn.	2	"
Leary, Matthew	Corinth, Me.	1834	11	"	"	Friends.	9	mo.
Lebert, Charles	Boston, "	1857	13	Ulcers in ears at 6 mo.		R. I.	5	yrs.
Lebert, George	Woodstock, Conn.	1854	11	"		Mass.	"	Now a pupil.
Lee, George H.	Burrville, R. I.	1855	10	Scarlet fever at 3 1/2 yrs.		Conn.	2	" Dead.
Lee, Mary J.	E. Long Meadow, Ms.	1844	24	Congenital.		Mass.	6	" A mechanic; married a deaf mute.
Leche, Catharine	Fitchburg, "	1845	9	Dropsy in head at 3 m.		Me. & F'ds.	4	" Married a deaf mute.
Leek, Leverett G.	Hamden, Conn.	1851	8	Brain fever at 3 1/2 yrs.		Mass.	5 3/4	" A mechanic; dead.
Leland, Nathaniel A.	Grafton, Mass.	1855	13	Scarlet fever at 4 yrs.		"	6	" A mechanic; married.
Lemont, William T.	Brunswick, Me.	1829	24	Congenital.		R. I. & F'ds.	6 1/2	"
Lemont, Frances E.	Cambridgeport, Mass.	1834	15	Congenital.		Vermont.	4	"
Leonard, Spencer	Wareham, Mass.	1834	10	Infla'n on brain at 4 y.		Conn.	5	" A mech.; twice married to a deaf mute.
Lester, Levi A.	Providence, R. I.	1849	28	Scarlet fever at 2 1/2 yrs.		Mass.	5	" Married a deaf mute; dead
Lewis, Harriet	Bridport, Vt.	1851	13	Ulcers in head.		Maine.	3 1/2	" Dead.
Lewis, Samuel A.	Middletown, Conn.	1848	9	Congenital.	1 second cos.	Vermont.	6	" Married a deaf mute.
Lewis, Sarah J.	Townsend, Mass.	1866	14	Unknown.		Mass.	9	" A teacher; married a deaf mute.
Libby, Lucia	Danby, Vt.	1848	16	Fever at 5 years.		"	"	Now a pupil.
Libby, Matilda C.	Gray, Me.	1847	11	Congenital.	2 brothers.	N. Hamp.	3 1/2	" Married a deaf mute
Lillie, Edwin H.	Randolph, Vt.	1856	9	"	2 brothers.	N. Hamp.	4 1/2	" Married a deaf mute.
Lindey, Lizzy	Salem, Mass.	1823	9	"		N. Hamp.	9	" A printer.
Linnehan, Mary A.	Boston, "	1845	19	Inflam. in head at 2 yrs.		Friends.	7	"
Livingston, Hiram L.	Antrim, N. H.					Vermont.	5	" Married a deaf mute.
Livingston, Josiah E.	"							
Livingston, Robert D.	Manchester, N. H.							
Lloyd, John H.	Hartford, Conn.							
Lockwood, Seymour L.	Springfield, Vt.							

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad.	Age.	Cause of Deafness.	Deaf and Dumb relatives.	How suppt'd.	Time under instruc.	REMARKS.
Lombard, Barnabas	Eastham, Mass.	1850	48	Congenital.		Himself.	6 mo.	A laborer.
Lombard, Caroline W.	Portland, Me.	1843	18	Unknown.		Maine.	5 yrs.	Married a deaf mute.
Lombard, Lothario D.	Oxford, "	1842	13	Scarlet fever at 3 yrs.	1 uncle.	"	3 1/4 "	A mechanic; married a deaf mute.
Long, Mary	Boston, Mass.	1852	12	Congenital.		Mass.	6 "	Married a deaf mute.
Loomis, Louisa	West Chester, Conn.	1834	13	"		Conn.	4 "	Dead.
Lord, Mary J.	Sydney, Me.	1840	16	"	1 bro. & oth. rel.	Maine.	5 "	Married.
Loring, George H.	Boston, Mass.	1817	9	Illness at 2 1/2 yrs.		Friends.	8 "	A teacher; married a deaf mute; dead.
Lovejoy, Abigail	Sydney, Me.	1860	12	Congenital.	G-fath, f, 1 bro	Maine.	5 "	A mechanic.
Lovejoy, Benjamin	"	1844	15	"	Fath., g-f. & o. r	"	5 "	A mechanic; married.
Lovejoy, Charles	Sebec, Me.	1825	22	"	1 br., 1 cos. & 3 ch	"	4 "	"
Lovejoy, Charlotte	Concord, N. H.	1822	23	"	2 bro. and 1 sis.	N. Hamp.	3 "	"
Lovejoy, Emma	Sebec, Me.	1851	10	"	Fath., 1 b., 1 sis.	Maine.	6 "	"
Lovejoy, Erastus	Sydney, "	1860	17	"	G-fath, fa. & sis.	"	4 "	Dead.
Lovejoy, Hartwell	"	1851	17	"	Fath. 2 sis. & o. r.	"	5 "	A mechanic.
Lovejoy, Orrin	Sydney, "	1840	19	"	1 sis. & oth. rel.	"	5 "	A farmer.
Lovejoy, Sarah	Sebec, "	1851	15	"	Fa., sis. 1 br. & c.	"	5 "	"
Lucas, George M.	Northumberland, N. H.	1829	13	"		N. H. & F's.	4 "	Master in a shoe-shop; married a deaf [mute.
Luce, Almira G.	West Tisbury, Mass.	1845	13	"	1 sis. & 4 oth. rel.	Mass.	2 1/2 "	Married a deaf mute.
Luce, Catharine C.	Tisbury, Mass.	1855	12	"	1 cousin.	"	2 "	Died at the Asylum.
Luce, Charles H.	Chilmark, "	1843	16	"	1 brother.	"	5 "	A farmer; married.
Luce, Israel	"	1835	14	"	1 "	"	3 "	A farmer.
Ludwig, Simon B.	Waldoboro, Me.	1853	10	"	1 cous. & 1 unc.	Maine.	6 "	"
Lummis, Delia A.	Pomfret, Conn.	1866	11	"		Conn.	"	Now a pupil.
Lyford, Reuben P.	Atkinson, Me.	1857	12	Scarlet fever at 4 1/2 y.		Maine.	2 1/2 "	Died at the Asylum.
Lyman, Ellen D. S.	Northampton, Mass.	1836	10	Congenital.		Friends.	5 1/2 "	Married a deaf mute.
Lynan, Noah	Richmond, "	1825	18	"		Mass.	4 "	Dead.
Lynch, Margaret	Tewksbury, Mass.	1864	20	Congenital.		Mass.	1 "	"
Lynde, William	Saybrook, Conn.	1832	9	Fever at 6 mos.		Friends.	5 1/2 "	A mechanic; twice married a deaf mute.
Lyons, Ellen	Lowell, "	1864	10	"		"	6 "	Now a pupil.
Lyons, Margaret	Cambridge, "	1854	9	"		"	"	"
Mackentosh, George	Canton, "	1864	9	Whoop, cough at 2 yrs.		"	"	"
Macomber, Julia	Oakham, "	1830	15	Dis. in head at 1 1/2 y.		"	4 "	Married a deaf mute.
Macomber, Lydia	Westport, "	1832	20	Congenital.	1 sister.	"	4 "	"
Macomber, Olive	"	1840	12	"	1 "	"	6 "	"
Magee, John	Boston, "	1857	10	Scarlet fever at 2 yrs.		"	7 "	A clerk.

Mahoney, Catharine	Boston, Mass.	1858	10	Congenital.				Mass.	6 yrs.	Married a deaf mute.
Mahoney, Eliza	" "	1844	9	"		1 brother.		"	6	Dead.
Mahoney, John	" "	1844	8	"		1 sister.		"	6	"
Mair, James	Lanark, Canada West.	1835	12	Unknown.				Friends.	5½	"
Maker, Amos	New Bedford, Mass.	1834	37	Congenital.				Mass.	1½	A mech.; married a deaf mute; dead.
Mallory, Susan J.	Middlebury, Conn.	1842	14	Whoop, cough at 1½ y.				Conn.	5	"
Manchester, William	Barnet, Vt.	1837	26	Spotted fever at 6 mo.		1 cousin.		Vermont.	1	A farmer; insane.
Maner, George R.	Buck Creek, Geo.	1836	10	Congenital.				Georgia.	4½	A farmer; married a deaf mute.
Mann, Mary A.	Portsmouth, N. H.	1821	12	Became deaf at 2½ yrs.				N. H. & F'ds.	5	A mechanic; dead.
Marden, Thomas W.	Randolph, Mass.	1838	10	Ulcers in head at 3 mo.				Mass. & F'ds.	9	A teacher.
Marden, Henry O.	Society Land, N. H.	1833	17	Spotted fever at 4 yrs.				N. Hamp.	4	A mech.; twice married a deaf mute; [dead.
Marks, Sarah C.	Mystic River, Conn.	1854	11	Congenital.				Friends.	6	Dead.
Marsh, Catharine B.	Providence, R. I.	1863	11	Scarlet fever at 1½ yrs.				R. I.	9	Now a pupil.
Marsh, Della	Roxbury, Mass.	1852	10	Congenital.		Par., 1 sis., 1 b.		Mass.	9	Married a deaf mute.
Marsh, Hannah L.	Calais, Vt.	1831	22	Spotted fever at 4 yrs.		[1 uncle.		Vermont.	3	Married.
Marsh, Jonathan	Plymouth, Mass.	1830	21	Congenital.				Mass.	4	Married a deaf mute.
Marsh, Jonathan F.	Winchester, Conn.	1827	13	Measles at 2 yrs.		3 children.		Conn. & F'ds.	6	A mechanic; married a deaf mute.
Marsh, Lucinda	Roxbury, Mass.	1860	11	Congenital.				Mass.	3	Died at the Asylum.
Marsh, Paulina N.	Litchfield, Conn.	1825	14	Lost hearing in infancy		Par., 2 sis., 1 un.		Friends.	3	Dead.
Marshall, Abraham F.	Roxbury, Mass.	1855	10	Congenital.				Mass.	7	Married a deaf mute.
Marshall, Eliza	Greenwich, Conn.	1852	9	"		1 bro. [1 unc.		Conn.	8	A shoemaker.
Marshall, Hannah	Bristol, R. I.	1821	19	Fever at 2 yrs.		1 sister.		Friends.	24	"
Marshall, Isabella E.	" "	1821	17	Scarlet fever at 3 yrs.		1 "		"	24	Married a deaf mute.
Marshall, Leslie G.	" "	1843	10	Congenital.				Conn.	5½	"
Marston, Westley N.	New London, Conn.	1852	11	"		1 brother.		Conn.	8	"
Marston, Charles H.	Greenwich, "	1864	18	Inflam. of brain at 11 m.				N. Hamp.		Now a pupil.
Martin, Ellen G.	Greenland, N. H.	1863	9	Scarlet fever at 5 yrs.				Mass.	1	Dead.
Martin, Reuben	Salem, Mass.	1840	15	Measles at 4 yrs.				Friends.	2	"
Martin, Richard J.	New Orleans, La.	1837	25	Yellow fever at 3 yrs.				Himself.	2	"
Martin, Susan E.	Danvers, Mass.	1850	11	Congenital.				Conn.	8	A mechanic.
Martin, Willard E.	New Haven, Conn.	1834	24	Illness in infancy.				Vermont.	2½	A tailor.
Mason, Clara	Baltimore, Vt.	1855	10	Lung fever at 8 mo.				"	9	A farmer.
Mason, Flora S.	West Randolph, Vt.	1842	14	Scarlet fever at 6 yrs.				Mass.	6	Now a pupil.
Matson, Elizabeth	Gt. Barrington, Mass.	1865	12	Lung fever at 3 mo.				Maine.		"
Mayberry, Sarah E.	Bangor, Me.	1865	45	Measles at 4 yrs.				Friends.		"
Mayhew, Alfred	New York city.	1858	14	"		1 cousin.		[1 a't Maine.	13	Idiotic.
Mayhew, Benjamin	Harrison, Me.	1827	20	Congenital.		2 b., 2 sis., 1 un.,		Mass.	3	A farmer.
Mayhew, Jared	Chilmark, Mass.	1858	12	"		Fath., moth. 1 b.		"	5½	"
Mayhew, Jonathan A.	" "	1864	11	"		Par. 5 un. & a's,		"		Now a pupil.
	Tisbury, "	1855	12	"		1 sis. [1 bro.		"	5	"

List of Pupils—Continued.

NAMES.	RESIDENCE.	Age at admission.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruction.	REMARKS.
Mayhew, Lovey	Chilmark, Mass.	1825 23	Congenital.	3 b. fs. 2 sec. c.	Mass.	5½ yrs.	Died at the Asylum.
Mayhew, Mercy C.	Tisbury, "	1852 14	"	1 brother.	"	7 "	Now a pupil.
Mayo, Hawes	Monroe, Me.	1864 10	"	m., 2 uncl's.	Maine.	"	Upholsterer.
McAlloon, Patrick	Boston, Mass.	1853 13	Scarlet fever. [cough.		Mass.	4 "	A tailorress.
McCarthy, Catharine	Boston, Mass.	1855 8	Measles and whooping-		"	6 "	
McCarthy, Joan	Hingham, Mass.	1852 9	Congenital.		"	7 "	
McCarthy, John	Andover, Mass.	1865 10	Canker at 2½ years.		"		Now a pupil.
McCluer, Rebecca M.	Nashua, N. H.	1839 13	Brain fever at 1½ yrs.		N. Hamp.	5 "	Dead.
McClure, Sophronia M.	Ryegate, Vt.	1859 17	Sores in ears at 2½ yrs.		Vermont.	6 "	Married a deaf mute.
McCoskrie, Mary	Cambridgeport, Mass.	1845 11	Congenital.		Mass.	6 "	
McCune, William J.	Easton, Conn.	1855 11	Scarlet fever at 3½ yrs.		Conn.	8 "	
McDonald, Catherine	Boston, Mass.	1866 11	Sickness at 1 yr.		Mass.		Now a pupil.
McDonnell, John	West Stockbridge "	1865 12	Scarlet fever at 4 yrs.		"		Now a pupil.
McDonough, E. A.	Russell, Mass.	1864 8	Scarlet fever at 1 year.		"		Now a pupil.
McDuffie, Mordock	Pulaski Co., Geo.	1844 19	Fall at 7 years.		Georgia.	2 "	
McElroy, Hugh	N. Providence, R. I.	1858 14	Scarlet fever at 8½ yrs.		Rhode I.	6½ "	
McEwen, Ephraim	"	1828 17	Congenital.	1 brother.	Conn.	4 "	
McEwen, George V.	"	1835 16	"	1 brother.	Conn.	2½ "	
McGee, Washington W.	Cambridge, Mass.	1848 8	Typhus fever at 4½ yrs.		Mass.	8½ "	A mechanic; married a deaf mute.
McGirr, Francis	Boston, Mass.	1863 10	Convulsions at 2 yrs.		Mass.		
McGuire, Margaret	"	1850 7	Congenital.		Mass.	7 "	Now a pupil.
McKay, Mary M.	River Point, R. I.	1858 11	Scrofula in head.		Rhode I.		Now a pupil.
McKey, Francis	Boston, Mass.	1852 9	Brain fever at 16 mo.		Mass.	7 "	A mechanic.
McKibbin, Mary	Philadelphia, Penn.	1851 15	Erysipelas at 1 yr.		Friends.	2 "	
McKinney, Andrew M.	New York.	1827 16	Unknown.		"	3 "	A mechanic.
McKinney, William J.	Alleghany City, Penn.	1865 14	Water on the brain.		"	5 "	Now a pupil.
McLaren, Helen	Barnet, Vt.	1832 14	Spotted fever at 11 mo.	1 brother.	Vermont.		
McLaughlin, Agnes	North Providence, R. I.	1852 10	Congenital.	1 sister.	R. Island.	3½ "	A tailorress.
McLaughlin, William	Pawtucket, Mass.	1847 10	"		Mass.	6 "	Dead.
McMaster, Hugh H. B.	Pittsburg, Penn.	1864 12	Fright at 2½ yrs.		Friends.		Now a pupil.
McMeachen, James H.	Wheeling, West Va.	1865 11	Scarlet fever at 5 yrs.		Friends.	"	"
McTier, Nancy	Boston, Mass.	1856 10	Congenital.		Mass. & F'ds.	6 "	Married a deaf mute; dead.
McVennan, Mary	Berkshire, Vt.	1832 10	Illness in infancy.		Vermont.	4 "	
McWhirk, Margaret	Milton, Mass.	1844 13	Congenital.		Mass.	4 "	
Meacham, James S.	Guildhall, Vt.	1840 12	Ulcers in head at 2½ y.		Vt. & F'ds.	6 "	A mechanic; married a deaf mute.

Meacham, Mary O.	Westfield, Mass.	1866 14	Congenital.	m., 1 b. and 1 s.	Mass.	4	Now a pupil.
Meacham, Morcellia A.	"	1866 9	"	"	"	6	Now a pupil.
Mead, Benjamin P.	Charleston, Vt.	1831 22	Spotted fever at 2 yrs.	"	Vermont.	"	A mechanic and farmer; dead.
Mead, Mary	Lowell, Mass.	1836 10	Scarlet fever at 2½ yrs.	"	Mass.	"	"
Meagher, Michael	Waterbury, Conn.	1865 10	" at 5 yrs.	"	Conn.	5	Now a pupil.
Mecker, Julia	Durham, Conn.	1837 12	Disease in head at 9 m.	"	Conn.	4	Married.
Melledge, Robert	Boston, Mass.	1829 12	Unknown.	"	Mass.	8	Dead.
Mellen, Mary W.	Hardwick, "	1846 10	Congenital.	1 aunt.	"	3	A weaver.
Meriam, Isaac	Bedford, "	1833 24	"	"	"	6	A mechanic.
Merrhew, Benjamin	Fairhaven, "	1843 11	Illness in infancy.	1 brother.	N. H.	4	A sailor.
Merrill, Anna M.	Gilford, N. H.	1862 13	Congenital.	1 brother.	Friends.	1½	A farmer; married a deaf mute.
Merrill, Barney	New Hartford, Conn.	1817 24	Illness.	1 sister.	N. H.	5¼	"
Merrill, Charles H.	Gilford, N. H.	1851 9	Scarlet fever at 1 yr.	2 brothers.	Maine.	4	Now a pupil.
Merrill, Frances J.	Skowhegan, Me.	1864 23	Sickness at 1½ yrs.	2 brothers.	N. Hamp.	4	Dead.
Merrill, John J.	Barnstead, N. H.	1846 13	Congenital.	2 brothers.	N. Hamp.	4	"
Merrill, Samuel E.	Barnstead, N. H.	1856 9	"	2 brothers.	N. Hamp.	4	"
Merrill William O.	"	1856 12	"	"	Conn.	4	"
Merriman, Laura A.	Southington, Conn.	1832 13	Lost hearing in infancy.	"	Mass.	4	A clock-face painter.
Messer, James	Boston, Mass.	1840 11	Scarlet fever at 3½ yrs.	"	Mass.	6	A mechanic; married a deaf mute, dead.
Messinger, Artemas S.	Canton, "	1831 13	Disease in head at 1 yr.	"	Mass.	5	A mechanic.
Metcalf, Lorenzo	Wilmington, Vt.	1830 14	Illness at 2½ yrs. [1 y.	"	Vermont.	4	A farmer; twice married a deaf mute.
Mettrash, Adam H.	Norwalk, Conn.	1851 13	Discharge of cannon at	"	Conn.	6½	Boatman; married a deaf mute.
Milan, Catherine	Milford, Mass.	1865 10	Brain fever at 1 yr.	"	Mass.	4	Now a pupil.
Miles, Diana	Townshend, Vt.	1829 24	Lost hearing at 6 yrs.	relatives.	Vermont.	"	A dressmaker.
Miller, Catharine W.	Thompsonville, Conn.	1862 8	Congenital.	"	Conn.	4½	Now a pupil.
Miller, Charles	Bangor, Maine.	1858 20	Scrofula in infancy.	"	Maine.	"	A tinman.
Miller, George	Providence, R. I.	1861 9	Congenital.	"	Rhode I.	"	Now a pupil.
Mills, Susan E. B.	Johnson, Vt.	1857 14	Scarlet fever at 9 mos.	"	Vermont.	6	Married.
Mims, Thomas	Thomas Co., Ga.	1844 21	Disease in throat at 2 y.	"	Georgia.	2	A farmer.
Miner, Hugh W.	Stonington, Conn.	1850 9	Congenital.	"	Conn.	8	A tailorress; dead.
Mitchell, Harriet	North Yarmouth, Me	1829 18	" [les at 3 y.	"	Maine.	4	"
Moise, Catharine L.	Hartford, Conn.	1854 8	Brain fever and meas-	"	Conn. & F'ds.	8	"
Monger, Lorana	Charleston, S. C.	1853 10	Unknown.	"	Friends.	4	"
Moodie, Thomas	Charlotte, Vt.	1833 15	Unknown.	"	Vermont.	4	"
Moody, Horace G.	Greensboro, Vt.	1858 10	Scarlet fever 1 y.	1 brother.	Vermont.	7	"
Moore, Anna M.	"	1858 8	"	1 brother.	Vermont.	5	A farmer and shoemaker.
Moore, Eliza A.	Lebanon, Maine.	1851 16	Measles at 6 mos.	"	Maine.	"	"
Moore, Henry H.	Boston, Mass.	1854 23	" in infancy.	"	Friends.	4	Now a pupil.
	Derby, Conn.	1863 9	Congenital.	"	Conn.	"	"
	Bordentown, N. J.	1858 14	Fall at 2 yrs.	"	Friends.	5	"

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Admission.	Cause of Deafness.	Deaf and Dumb relatives.	How supplied.	Time under instruction.	REMARKS.
Morgan, Diodate	Long Meadow, Mass.	1840 30	Congenital.	1 sister.	Himself	2 yrs.	A farmer; married a deaf mute.
Morgan, Jesse	Greenville, S. C.	1847 12	"	1 cousin.	So. Carolina.	4 1/2 "	A farmer.
Morgan, Josephine B.	Long Meadow, Mass.	1838 33	Whoop. cough at 6 m.	1 brother.	Mass.	2 3/4 "	"
Morrell, Leland	Corinth, Me.	1865 11	Brain fever in infancy.		Maine.	1 "	"
Morrill, Winthrop	Falmouth, "	1826 27	Unknown.		"	2 1/2 "	Dead.
Morris, George W.	Lisbon, N. H.	1825 17	Congenital.		N. Hamp.	4 "	A mechanic.
Morris, Orrill	Sturbridge, Mass.	1825 26	"		Mass.	8 mo.	Dead.
Morrison, Eliza	Peterboro', N. H.	1817 16	"	3 sisters.	N. H. & F'ds.	6 yrs.	"
Morrison, Polly	"	1817 26	"	3 sisters.	Friends.	6 "	Dead.
Morrison, Sally	"	1817 18	"	1 bro., 1 sis. and	"	4 1/2 "	"
Morse, Charles C.	Bridgetown, N. S.	1823 23	"	[1 cousin	"	4 "	"
Morse, Clarissa	Kirkland, Ohio.	1837 16	Fever at 8 months.		Maine.	3 1/4 "	Died at the Asylum.
Morse, Emma A.	Fayette, Me.	1835 11	Ulcers at 2 1-2 yrs.		Vermont.	5 "	A peddler; married a deaf mute.
Morse, George N.	Williston, Vt.	1831 10	Congenital.		Mass.	6 "	A printer; married a deaf mute.
Morse, Nathan P.	Gloucester, Mass.	1846 14	"		"	5 1/4 "	"
Morse, Sophronia	Sandwich, "	1862 16	Unknown.		Conn.	1 "	Now a pupil.
Moseley, Joseph A.	Pomfret, Conn.	1818 22	Congenital.		Friends.	"	A laborer.
Molthrop, Harvey	Middletown, "	1864 8	Whoop. cough at 2 m.		Maine.	"	Now a pupil.
Moulton, Florett	Biddeford, Me.	1864 15	Canker rash at 1 yr.		"	"	"
Moulton, Thomas	Buxton Center, Me.	1835 10	Scarlet fever.	2 sisters. [cous.	Friends.	4 "	An engraver.
Mowatt, John E.	New York.	1842 17	Congenital.	1 bro., 1 sis. 1 2d	"	5 "	Married.
Mowry, Charles W.	Smithfield, R. I.	1842 17	"	1 bro. and sis.	F'ds & R. I.	7 "	"
Mowry, Desire	"	1844 9	"		Mass.	4 mo.	Now a pupil.
Mowry, Minerva	Salem, Mass.	1865 11	"		"	6 yrs.	Idiotic.
Moulcaby, Mary E.	Cambridgeport, "	1854 10	"	1 brother.	"	"	Died at the Asylum.
Muldoon, Sarah A.	"	1856 17	"		"	"	"
Mundall, Daniel W.	Hubbardston, "	1856 11	"		"	"	"
Mundall, Charles J.	"	1862 9	"		"	"	"
Munroe, Betsey A.	Rehoboth, Conn.	1819 22	Unknown.		Conn.	1 "	Now a pupil.
Munson, Polly	Handen, Conn.	1862 8	Scar. fever at 2 1-2 yrs.		Mass.	"	"
Murphy, Mary E.	Boston, Mass.	1865 10	Scarlet fever at 5 yrs.		Conn.	"	"
Muth, John	Hartford, Conn.	1842 14	Inflam. in head at 14 m.		Vermont.	5 "	A mechanic; married a deaf mute.
Needham, Henry C.	Bristol, Vt.	1866 16	Brain fever at 15 yrs.		"	"	"
Negus, Edwin R.	Salisbury, "	1847 9	Lung fever at 1 1/2 yrs.		Mass.	6 "	Now a pupil.
Neill, Helen A.	Lynn, Mass.						

Neilson, Philip H.	Warm Springs, N. C.	1819	12	Fever at 2 years.				5 $\frac{1}{2}$ yrs.	A farmer; married.
Neisler, William B.	Athens, Geo.	1835	16	Measles at 5 yrs.				5 $\frac{1}{2}$	A farmer; married a deaf mute.
Nelson, James	Lowell, Mass.	1864	12					4	Now a pupil.
Nelson, William	Boston, "	1829	14	Illness at 2 $\frac{1}{2}$ yrs.				3	A mechanic; married a deaf mute.
Nelson, William J.	New York city.	1861	12	A fall at 3 years.				6	Dead.
Nettleton, Charlotte A.	Bridgewater, Conn.	1858	12	Scrofula at 18 mo.				5 $\frac{1}{4}$	A dress-maker; married a deaf mute.
Newcomb, Abigail N.	Sandwich, Mass	1829	15	Congenital.		4 bro. and 2 sis.		6	Married a deaf mute.
Newcomb, Ellen G.	"	1831	15	"		"		6	Married; dead.
Newcomb, Jane A.	"	1819	13	"		"		5	A mechanic; married; dead.
Newcomb, John W.	"	1821	14	"		3 bro. and 3 sis.		5	A glass-cutter; married.
Newcomb, Josiah S.	"	1821	10	"		"		5	Idiotic.
Newell, Moses G.	West Newbury, Mass.	1860	12					2 mo.	
Newhall, George A.	Melrose, "	1858	9	A fall at 3 years.				8 yrs.	
Newhall, Mary A.	"	1825	18	Unknown.				5	A shoe-binder.
Newton, Culver	Middletown, Vt.	1836	16	Scarlet fever at 18 mo.				4 $\frac{1}{2}$	
Newton, Ellen M.	Amherst, Mass.	1856	10	Influenza at 15 mo.				7	
Niblo, William	New York.	1826	11	Fever at 1 year.				4	An artist; married a deaf mute; dead.
Nichols, Marietta	Roxbury, Mass.	1865	16	A fall at 2 yrs.		1 brother.		7	Now a pupil.
Nichols, Robert H.	Boston, "	1850	8	Illness at 2 years.				7	
Nicholson, Geo. W. P.	Pittsburg, Penn.	1863	8	Scarlet fever at 3 yrs.				1	
Nickerson, Eveline W.	Barnstable, Mass.	1852	11	Congenital.		1 brother.		7	Married a deaf mute.
Niles, Almira	Piermont, N. H.	1823	16	Unknown.				4	A tailor; married; dead.
Nolan, Thomas	Poultney, Vt.	1857	13	Congenital.				6	
Norcross, Alphonse M.	Norwich, Conn.	1857	8					8	
Norwood, Daniel	Salem, Mass.	1848	14	Fall at 9 mos.				5	Married a deaf mute.
Norwood, Imogene	Washington, Texas.	1848	12	Congenital.				2	
Noyes, Statura P.	Newburyport, Mass.	1819	14	"				6	
Nute, Charles	Milton, "	1844	12	Scarlet fever at 9 mo.				6	Dead.
Nye, Eliza	Pomfret, Conn.	1843	12	" " 7 yrs.				6	A mechanic; married a deaf mute.
Oakes, Catharine	Richmond, Mass.	1833	9	Congenital.				1 $\frac{3}{8}$	Died at the Asylum.
O'Brien, James	Whitefield, Me.	1832	17	"		1 sister.		8	Dead.
O'Brien, Mary	East Cambridge, Mass.	1865	13	Sickness at 4 months.				4	A laborer.
O'Brien, Nancy	Boston, "	1838	12	Congenital.				3 $\frac{1}{2}$	Now a pupil.
O'Bryan, Henry	Bristol, Vt.	1843	12	Scarlet fever at 2 yrs.		1 brother.		4	Dead.
O'Connell, Jeffrey	Boston, Mass.	1842	19	Illness at 6 mos.				1 $\frac{3}{8}$	A mechanic.
O'Donnell, Catharine	Stonington, Conn.	1860	8	Congenital.				4	Now a pupil.
O'Donnell, James	Taunton, Mass.	1859	16	Scarlet fever at 4 yrs.				5	
Ogburn, Mary A. L.	Brunswick Co., Va.	1838	23	Illness at 1 year.				4	Married a deaf mute.
Ogden, Hartie P.	Philadelphia, Penn.	1860	16	Congenital.				4	
O Harra, John	Milford, Mass.	1860	10	Ulcers in head at 1 yr.				1	Now a pupil.

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Age.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruc	REMARKS.
O'Hearn, Eliza	Tewksbury, Mass.	1864 12	Scarlet fever at 4 yrs.		Mass.	5 yrs.	Now a pupil.
Olds, William H.	Alford, "	1847 10	Congenital.		"	6 "	
O'Neil, Mary A.	Boston, "	1859 9	"		"		Now a pupil.
O'Neil, Michael	Charlestown, "	1866 9	"		"	2 "	
Orr, Agnes	Lowell, "	1862 13	"		"	7 mo.	
Orr, Nancy	Bath, N. Y.	1817 23	Illness in infancy.		Friends.	6 yrs.	A mechanic.
Osgood, Alden F.	Natick, Me.	1847 8	Congenital.		Mass.	4 "	A mechanic; married.
Osgood, Elisha	Exeter, Me.	1831 10	"		Maine.	6 "	
Osgood, Henry A.	Boston, Mass.	1827 13	Unknown.		Mass.	6 "	Now a pupil.
Ould, Edward C.	Derby, Conn.	1861 9	Scarlet fever at 5 yrs.		Conn.	6 "	Married a deaf mute.
Oviatt, Alvina	Amherst, Mass.	1846 8	Illness at 2½ yrs.		Mass.	8 "	Married a deaf mute; a printer.
Packard, Philo W.	Boston, "	1846 8	Scarlet fever at 4½ yrs.		"	1½ "	
Packer, Deborah	Leyden, "	1825 24	Congenital.	2 bro. and 2 sis.	"	3 "	
Packer, Eldridge	Guilford, Vt.	1844 27	"	3 sis. and 1 bro.	Vermont.	2½ "	Died at the Asylum.
Packer, Jerusha	Leyden, Mass.	1825 16	"	2 bro. and 2 sis.	Mass.	2½ "	
Packer, Mary	"	1825 21	"	2 bro. and 2 sis.	"	2½ "	
Packer, Simeon	"	1825 23	"	1 bro. and 3 sis.	"	5 "	A farmer; married.
Page, John W.	Hollis, Me.	1838 13	Unknown.		Maine.	5 "	A mechanic.
Page, Nelson S.	Sherman, Conn.	1839 12	Scarlet fever at 3 yrs.		Conn.	5 "	Now a pupil.
Page, Roscoe G.	Norridgewock, Me.	1860 9	Congenital.		Maine.	7 "	
Palmer, Abby L.	Concord, N. H.	1850 11	Scarlet fever at 6 mos.		N. Hamp.	5 "	
Palmer, Cyrus D.	Voluntown, Conn.	1844 13	Congenital.		Conn.	7 "	Dead.
Palmer, William F.	Leominster, Mass.	1852 9	Canker rash at 3 yrs.		Mass.	7 "	A farmer; married a deaf mute.
Parker, Charles	West Rupert, Vt.	1841 13	Scarlet fever at 10 mos.		F'ds and Vt.	5½ "	
Parker, Harvey A.	Pepperell, Mass.	1852 14	Congenital.		Mass.	2¾ "	Dead.
Parker, John	Andover, "	1854 10	"		"	3 "	
Parker, Mary A.	Sutton, N. H.	1829 13	Illness at 9 mo.		N. H. & Mas.	6½ "	Married; dead.
Parkhurst, Ithiel	Milford, Mass.	1825 21	" " 2 yrs.		Mass.	4 "	A mechanic; married; dead.
Parkinson, Joseph G.	Sandwich, N. H.	1861 12	Scarlet fever at 9 yrs.		N. Hamp.	2 "	
Parsons, Allura H.	Wells, Me.	1851 10	Congenital.		Maine.	6 "	
Parsons, Sarah A.	Colebrook, N. H.	1839 26	Typhus fever at 6 yrs.		Friends.	1 "	Dead.
Paterson, Andrew	Streetsville, C. W.	1854 21	Congenital.		"	2 yrs.	
Paterson, Charles	Saco, Me.	1864 11	"	1 cousin.			Now a pupil.
Peabody, Orison D.	Alstead, N. H.	1855 19	Ulcers in ears at 2 yrs.		N. Hamp.	5 "	A farmer.
Pease, Adelaide A.	Hartford, Conn.	1841 10	Congenital.	2 sisters.	Conn. & F'ds.	7 "	

Pease, Andrew J.	Enfield, Conn.	1844	11	Congenital.		2 sisters.	Conn.	4 $\frac{3}{4}$ yrs.	Dead.
Pease, Bathsheba H.	Somers, "	1838	10	Inflam. in head at 2 y.		2 sisters.	"	5 "	Married a deaf mute.
Pease, Jane M.	Hartford, "	1843	11	Congenital.		2 sisters.	F'ds & Conn.	6 "	Dead.
Pease, Martha A.	"	1837	8	"			Rhode I.	8 "	Dead.
Pekham, Eugenia J.	Westerly, R. I.	1862	13	Ulcers in head at 1 yr.			Mass.	1	Now a pupil.
Peltier, Ella M.	Boston, Mass.	1863	11	Inflam. in head at 6 m.			Maine.	6 "	Dead.
Pendleton, Nathan E.	Northport, Me.	1848	11	Congenital.		3 cousins.	Mass.	5 "	A farmer.
Penniman, Emily F.	Braintree, Mass.	1833	13	Congenital.		2 sis. and 1 cos.	"	4 "	An artist; dead.
Penniman, Joseph H.	"	1833	14	Congenital.			Maine.	5 "	Married a deaf mute.
Perkins, Benjamin F.	Boston, "	1826	13	Fits at 1 year.			N. Hamp.	2 "	A mechanic; married a deaf mute.
Perkins, Freeland	Woodstock, Me.	1851	14	Ulcers in head at 9 mo.			Vermont.	8 "	Married a deaf mute.
Perkins, Lewis N.	Lyme, N. H.	1832	16	Dis. in head at 1 $\frac{1}{2}$ yrs.		1 second cousin.	Mass.	6 "	"
Perkins, Mariette	Woodstock, Vt.	1852	9	Congenital.		2 sisters.	Maine.	5 "	"
Perkins, Mary A.	Newbury, Mass.	1847	11	Scarlet fever at 3 $\frac{1}{2}$ yrs.		2 "	Maine.	4 "	Died at the Asylum.
Perkins, Phebe	Sanford, Me.	1837	17	Congenital.			Friends.	6 $\frac{1}{2}$ "	Dead.
Perkins, Sally	"	1837	12	"			Vermont.	5 "	Married a deaf mute.
Perkins, Thomas S.	New London, Conn.	1831	8	Fever at 13 months.			Vermont.	4 "	"
Perry, Carlos	Irasburg, Vt.	1852	18	Scarlet fever at 2 yrs.			Mass.	4 mo.	Now a pupil.
Person, Prudence M.	Pomfret, "	1856	17	Ulcers in head in infan.			Georgia.	3 yrs.	A clerk; married a deaf mute; dead.
Persons, Dexter	Orwell, "	1831	22	Congenital.			Conn. & F'ds.	7 $\frac{1}{2}$ "	Married a deaf mute.
Peterson, Willie S. H.	Plymouth, Mass.	1862	8	"		1 child.	N. Hamp.	4 $\frac{1}{2}$ "	Dead.
Peugh, Almira	Zebulon, Geo.	1843	12	"			N. Hamp.	1 $\frac{3}{4}$ "	Now a pupil.
Pfeifer, Peter	Collinsville, Conn.	1857	16	Sickness in infancy.			R. I.	4 "	Dead.
Phelps, Daniel W.	Middlebury, Vt.	1839	9	Scarlet fever at 3 yrs.			Vermont.	4 "	Married a deaf mute.
Phelps, Sarah R.	Hartford, Conn.	1842	11	Unknown.			Mass.	1 $\frac{3}{4}$ "	Now a pupil.
Philbrick, Martha L.	Andover, N. H.	1834	16	Typhus fever at 2 $\frac{1}{2}$ y.			Vermont.	3 yrs.	A clerk; married a deaf mute; dead.
Philbrick, Samuel	Wolfborough, N. H.	1838	20	" " 2 yrs.			Conn. & F'ds.	8 "	Married a deaf mute.
Philbrook, Henry O.	Charlestown, Mass.	1864	15	Ulcers in head at 10 m.			N. Hamp.	4 $\frac{1}{2}$ "	Dead.
Pick, William C.	Providence, R. I.	1863	8	Scarlet fever at 6 yrs.			N. Hamp.	1 $\frac{3}{4}$ "	Now a pupil.
Pierce, George	Royalton, Vt.	1826	16	Spotted fever at 1 $\frac{1}{2}$ yrs.			R. I.	4 "	Dead.
Pike, Eliza	Buxton, Me.	1840	18	Lung fever at 8 mos.			Vermont.	5 "	Married a deaf mute.
Pillsbury, Mariette	Lyme, N. H.	1835	14	Inflam. on brain at 2 y.			Maine.	4 "	A farmer; married a deaf mute.
Pinnco, Leaphy F. E.	Barnstead, N. H.	1843	16	Congenital.			N. Hamp.	4 "	"
Plaisted, Mary M.	Duxbury, Vt.	1851	9	Fever at 1 $\frac{1}{2}$ yrs.		1 brother.	Vermont.	1 "	"
Plaisted, Samuel S.	Limeric, Me.	1859	11	Scarlet fever at 10 mo.		1 sister.	Maine.	6 "	"
Platt, Emmon H.	"	1859	9	Congenital.		1 sister.	Friends.	5 "	"
Platt, Mary A.	Washington, Conn.	1820	11	"		1 brother.	"	4 "	"
Platt, Sarah E.	"	1822	10	"			Mass.	4 $\frac{1}{2}$ "	Now a pupil.
Poland, Ira	North Chester, Mass.	1865	9	Cold in head at 2 yrs.			"	4 $\frac{1}{2}$ "	A mechanic; married a deaf mute.
	Essex, "	1839	12	Unknown.					

List of Pupils---Continued.

NAMES.	RESIDENCE.	Time of Ad. Age.	Cause of Deafness.	Deaf and dumb relatives.	How supp't'd.	Time under instruc.	REMARKS.
Pomeroy, Balsora L.	Northampton, Mass.	1840 11	Congenital.		Mass.	1 yr.	Died at the Asylum.
Pond, Martha J.	Dorchester, Mass.	1844 11	Illness at 2 yrs.		"	6	Married a deaf mute.
Pond, Nathan L.	Milford, "	1862 10	Lung fever at 10 mos.		"	"	Now a pupil.
Pool, George W.	Weymouth, "	1837 12	Congenital.	1 brother.	"	5	A mechanic.
Pool, James H.	"	1836 14	"	1 brother.	"	5	A mechanic; dead.
Poor, John	Newburyport, Mass.	1832 20	Unknown.		"	4	A mechanic; married a deaf mute.
Porter, Matilda S.	Pembroke, Me.	1858 18	Congenital.		Maine.	2	
Porter, Wendell P.	Somerville, Mass.	1858 9	"		Mass. & F'ds.	"	Now a pupil.
Potter, Charles	Cranston, R. I.	1827 28	"		Friends.	2	Married; dead.
Powers, James	Boston, Mass.	1865 8	Cold and fits at 4 yrs.		Mass.	"	Now a pupil.
Powers, James A.	Salem, Mass.	1862 11	Dropsy in head at 5 m.		Mass.	"	Married; dead.
Pratt, John W.	Middletown, Conn.	1861 8	Fall at 2 years.		Conn.	"	"
Pratt, Louisa C.	South Braintree, Mass.	1855 14	Scarlet fever at 4 yr.		Friends.	5½	
Pratt, Mary E.	Cambridge, Vt.	1848 10	Scarlet fever at 2 yrs.		Vt.	5	"
Pray, Winfield S.	Great Falls, N. H.	1854 6	Congenital.		N. H. & F'ds.	10	"
Prescott, Eldad A.	Jaffrey, N. H.	1833 16	Lung fever at 1 year.		N. H. & F'ds.	5	A mechanic; twice married to a deaf [mute; dead.
Prescott, Nathaniel M.	Manchester, N. H.	1846 10	Scarlet fever at 2 yrs.		N. Hamp.	"	A mechanic; dead.
Prescott, Sally	Rupert, Vt.	1827 15	Measles at 2 years.		Vermont.	4	Married; dead.
Pressey, Mary	Hanover, N. H.	1846 17	Scarlet fever at 2 yrs.		N. Hamp.	5	Married a deaf mute.
Preston, Erasmus D.	Hancock, N. H.	1834 15	Ulcers in head at 2 yrs.		"	4½	Married a deaf mute.
Pritchard, Edwin	Derby, Conn.	1825 13	Congenital.		Friends.	1½	Dead.
Prince, Mary E.	Camden, Me.	1860 12	Sores in ears at 1 year.	1 sister.	Maine.	5	"
Prior, Ephraim	Madison, Ga.	1832 25	Congenital.	2 bro. and 1 sis.	Ga.	2½	"
Prior, Lucius A.	Cedar Town, Ga.	1849 22	"	2 bro. and 1 sis.	"	6 mo.	"
Prior, Middleton	Madison, "	1832 23	"	2 bro. and 1 sis.	"	2½ yrs.	"
Prior, Susan	Middletown, Conn.	1830 18	"		Conn.	3	"
Pritchard, Hannah	Cohasset, Mass.	1830 18	Unknown.		Mass.	4	Married; dead.
Proctor, Emma J.	West Gloucester, Mass.	1866 11	Sickness at 1½ years.		"	"	Now a pupil.
Proctor, Mary L.	Boston, "	1819 33	Congenital.	2 bro. and 1 sis.	"	4	Dead.
Putnam, Almedia M.	Poland, Me.	1862 13	Scarlet fever at 3½ yrs.		Maine.	"	Now a pupil.
Quimby, Charles A.	Campton, N. H.	1842 22	Congenital.	1 sister.	N. Hamp.	1	A laborer.
Quimby, Frances M.	"	1842 13	"	1 brother.	"	2	Dead.
Quincy, Josiah	Monson, Mass.	1865 11	"		Mass.	"	Now a pupil.
Quinn, Mary A.	East Hartford, Conn.	1861 9	Scarlet fever in infancy.		Conn.	"	"
Randall, Anna A.	New Durham, N. H.	1855 10	Scarlet fever at 1 yr.		N. Hamp.	6	"

Randall, Cyrus	North Stonington, Ct.	1840	16	Illness in childhood.	Conn.	4	yrs.	Dead.
Ranney, Harriet N.	Ashfield, Mass.	1845	30	Scarlet fever at 1 yr.	Mass.	3	"	Married a deaf mute.
Ransom, Maria	Cambria, N. Y.	1819	17	Congenital.	Friends.	2	"	
Raymond, Lovisa	Stow, Vermont.	1826	21	"	Vermont.	4	"	
Raymond, Sarah	"	1826	23	"	"	4	"	
Read, Ada D.	Dummerston, Vt.	1826	23	"	"	7	"	A farmer; married a deaf mute.
Read, Adin T.	"	1855	8	"	"	5	"	Dead.
Read, George F.	"	1840	13	"	"	5	"	Married a deaf mute; dead.
Read, Lucy A.	"	1843	11	"	"	6	"	Married a deaf mute.
Reardon, Ann	Boston, Mass.	1840	12	"	Mass.	6	"	A tailorress.
Record, Ann Maria	Buckfield, Me.	1857	13	"	Maine.	5	"	Married a deaf mute.
Record, Olivia J.	"	1846	24	"	Maine.	5	"	Teacher of drawing; dead.
Redding, Jacob G.	Barnet, Vt.	1838	19	"	Vermont.	4	"	
Reed, Stillman S.	Chesterfield, Mass.	1826	15	Spotted fever at 3 yrs.	Mass.	5	"	A mechanic; married a deaf mute.
Reekie, Margaret	Clinton, Mass.	1833	15	Whoop. cough at 1 mo.	"	6	"	
Reeves, Mary A.	Suffield, Conn.	1858	8	Congenital.	Conn.	1	"	Dead.
Reynolds, Edward	Walpole, N. H.	1854	10	"	N. H.	5	"	
Reynolds, Frank B.	Thompson, Conn.	1854	9	"	Conn.	8	"	Dead.
Reynolds, Sarah L.	Winchester, Conn.	1857	9	Ulcer in head at 8 mo.	F'ds. & Conn.	7	"	Married a deaf mute.
Rice, Aliena	Galena, Ill.	1841	9	Congenital.	Friends.	7	"	Twice married a deaf mute.
Rice, William F.	Bangor, Me.	1818	13	"	Maine.	6	"	
Rich, Louisa	Montpelier, Vt.	1859	14	Congenital.	Vermont.	4	"	Married; dead.
Richards, Emily L.	Fitchburg, Mass.	1826	19	Disease in head.	Mass.	7	"	Married a deaf mute; dead.
Richards, Sybil S.	Newburyport, Mass.	1851	9	Humors in head at 2 yrs.	"	5	"	Married a deaf mute; dead.
Richards, Amelia A.	Mansfield, Mass.	1827	14	Fall at 3½ years.	"	8	"	Now a pupil.
Richardson, Ellen A.	Newburyport, "	1866	9	Congenital.	"	5	"	
Richardson, Hannah S.	"	1850	10	"	"	8	"	A dress-maker. Married a deaf mute.
Richardson, James J.	Fairfield, S. C.	1849	20	"	S. C.	5	"	A mechanic.
Richardson, Lauretta J.	Mansfield, Mass.	1838	20	Unknown.	Mass.	2	"	Now a pupil.
Richardson, Moses H.	Newburyport "	1862	10	Scarlet fever at 1 yr.	"	6	"	A mechanic.
Richardson, Wm. R.	Townsend, "	1846	14	Congenital.	Conn.	2	"	Married a deaf mute; dead.
Richmond, Ephraim H.	Voluntown, Conn.	1829	14	Illness at 8 mos.	Maine.	6	"	Now a pupil.
Rideout, Charles	Houlton, Maine.	1865	9	Congenital.	R. I.	5	"	Married a deaf mute.
Rider, Alpheus H.	Covenry, R. I.	1863	19	Ulcers in head at 2 yrs.	Maine.	6	"	A farmer.
Riggs, George L.	Livermore, Me.	1857	20	Brain fever 1 yr.	"	5	"	Married a deaf mute.
Rines, Stephen	Augusta, Me.	1847	9	Congenital.	"	5	"	A mechanic; dead.
Rines, Stover	Portland, Me.	1837	17	Illness at 7 years.	Mass.	6½	"	
Robbins, Daniel	Plymouth, Mass.	1857	13	Scarlet f. at 3½ years.	"	4	"	A mechanic; married a deaf mute.
Robbins, Emeline E.	Deerfield, "	1832	15	Congenital.	"	6	"	
Robbins, Sally H.	Plymouth, Mass.	1846	12	Ulcers in head at 1 yr.	Mass.	4	"	A tailorress.
		1824	23	Congenital.	"	5	"	

List of Pupils--Continued.

NAMES.	RESIDENCE.	Time of Ad.	Age.	Cause of Deafness.	Deaf and Dumb relatives.	How suppt'd.	Time under instruct.	REMARKS.
Roberts, Frank B.	Boston, Mass.	1866	9	Congenital.	1 uncle.	Friends.	6 yrs.	Now a pupil.
Roberts, Miranda D.	Hartford, Conn.	1841	12	"	2 brothers.	Conn.	6	Dead.
Robertson, Adam G.	Point Levi, C. E.	1845	13	"	2 "	Friends.	8	"
Robertson, John A.	"	1848	10	"	2 "	"	5	Married.
Robertson, Thomas C.	"	1843	15	"	2 "	Mass.	4	A teacher; dead.
Robinson, Catharine T.	Nantucket, Mass.	1854	28	Scarlet fever at 7 yrs.		Maine.	"	Now a pupil.
Robinson, John H.	Freedon, Me.	1863	8	Congenital.		Friends.	5	A mechanic; married; dead.
Roche, Hattie F.	New Bedford, Mass.	1850	11	Fall at 3 1/2 yrs.	1 bro. and 2 sis.	Maine.	4	"
Rogers, Charles	Freeport, Me.	1832	11	Congenital.	4 relatives.	Conn.	3	"
Rogers, Charles	Milford, Conn.	1856	25	"	2 bro. & 1 sis.	Maine.	5	"
Rogers, Ellen P.	Freeport, Me.	1837	15	"		Conn.	8	"
Rogers, Georgiana F.	Montville, Conn.	1857	10	Fall at 3 years.		Mass.	5	Married.
Rogers, Lucinda	Harwich, Mass.	1843	16	Whoop. cough. at 1 1/2 y.	1 sis. & 2 bro.	Maine.	4	Dead.
Rogers, Miriam P.	Freeport, Me.	1825	12	Congenital.	1 b, 2 s., 3 child.	"	4	A mechanic; married a deaf mute; [dead.
Rogers, Robert P.	"	1832	13	"		Mass.	6 1/2	"
Rogers, Sabrina R.	East Brewster, Mass.	1856	11	"		Friends.	1	Married.
Rose, Mary E.	New York city.	1817	9	"	2 cousins.	Maine.	4	"
Ross, Elizabeth J.	Kennebunk, Me.	1856	15	"	1	Georgia.	5	A carpenter.
Ross, William	Jefferson, Ga.	1835	18	"		R. I.	"	Now a pupil.
Rounds, Sylvia D.	Coventry, R. I.	1862	10	Ulcers in head at 2 yrs.	4 bro. and 2 sis.	Maine.	1 mo.	"
Rowe, Aaron L.	New Gloucester, Me.	1857	20	Congenital.	2 sis. and 4 bro.	"	5 yrs.	Twice married to deaf mutes.
Rowe, Benjamin	"	1841	18	"	5 bro. and 1 sis.	"	5	"
Rowe, Lucy A.	"	1843	15	"	"	"	4	Married a deaf mute.
Rowe, Nancy E.	"	1829	13	"	2 sis. and 4 bro.	"	4	A farmer; married a deaf mute.
Rowe, Nathaniel E.	"	1829	15	"	2	"	5	A farmer; married a deaf mute.
Rowe, Samuel	"	1843	18	"	1 child. & 1 cos.	Vermont.	4	Married a deaf mute.
Rowell, Mary P.	Hinesburg, Vt.	1826	20	Fever at 2 yrs.		Conn. & F'ds.	4	"
Rowley, Sophia	Winsted, Conn.	1830	17	Congenital.	3 children.	Mass.	4	Now a pupil.
Rudolph, William	Boston, Mass.	1866	10	Scarlet fever at 2 yrs.	1 brother.	Friends.	4	Married.
Russell, Eliza	New Hartford, N. Y.	1822	14	Unknown.		Conn.	2	Married a deaf mute.
Russell, Mary	Hartford, Conn.	1824	19	Congenital.		Maine.	4	"
Russell, Sanford	Athens, Me.	1859	24	Scarlet fever at 1 yr.		R. I.	1 1/2	Dead.
Ryan, Ann	Warwick, R. I.	1856	11	Fever & spasms at 3 y.		Vermont.	5	Now a pupil.
Ryan, John	Center Rutland, Vt.	1865	11	Scarlet fever at 4 yrs.		Maine.	"	"
Ryan, Lurana	Waldo, Me.	1853	14	Congenital.			"	"

Ryan, William	East Haven, Conn.	1848	12	Congenital.		Conn.	6	Now a pupil.
Sackett, Charles E.	S. Glastenbury, Conn.	1865	13	Scarlet fever at 2 yrs.		Mass.	6	Married a deaf mute.
Sackett, Lucy M.	Westfield, Mass.	1846	8	Congenital.		Maine.	6	"
Safford, Mellen F.	Turner, Me.	1852	14	Canker rash in infancy.		Conn.	5	A seamstress.
Sage, Julia A.	Portland, Conn.	1835	12	Dis. in head in infancy.		Mass.	4	A blacksmith; married a deaf mute.
Sage, Richard H.	Ludlow, Mass.	1825	14	Illness at 1 yr.		Friends.	6	mo.
Sandborn, Frances	Tunbridge, Vt.	1854	18	Scarlet fever at 5 yrs.		Vermont.	1	yr.
Sanders, Clara L.	Bethel,	1864	15	" " 3 "		Friends.	5	"
Sanford, William S.	Cornwallis, N. S.	1841	17	Congenital.	1 brother.	Mass.	2	"
Sanger, Levi H.	Westborough, Mass.	1836	20	"	1 "	"	4	"
Sanger, Joseph O.	"	1836	15	"		"	6	1/2
Saul, Willie H.	Salem,	1844	9	"	2 second cos.	Maine.	5	"
Saunders, Martha M.	Walpole, Me.	1850	16	"		Vermont.	4	"
Sawtelle, Madison P.	Sidney, Me.	1828	19	Spotted fever at 1 yr.		Conn.	4	"
Sawyer, Paul	Plymouth, Vt.	1861	10	Measles at 2 yrs.		Friends.	4	"
Saxe, Ferdinand	Waterbury, Conn.	1858	14	Scrofula at 2 yrs.	1 brother.	Maine.	9	mo.
Scammell, Henry B.	Charlestown, Mass.	1863	10	Convulsions at 2 yrs.	1 sister.	Vermont.	2	ys.
Scoles, Rachel A.	Augusta, Me.	1827	15	Illness.		Friends.	4	"
Scoles, William M.	"	1818	19	Congenital.	1 sis. 1 un. 6 co.	Conn.	4	"
Scott, Anna L.	Sangate, Vt.	1818	14	"	Fa. 4 br. 1 s. 1 co.	"	5	"
Scott, Rufus	Gill, Mass.	1838	15	"	" " 1 co.	"	3	"
Scovel, Franklin	Orwell, Vt.	1838	25	"	Fa. 3 b. 2 s. 1 co.	Mass.	8	"
Scovel, Harriet E.	Cornwall, Conn.	1866	11	Typh. & bil. fev. at 10 y.	1 consin.	Maine.	4	"
Scovel, Olive	"	1858	9	Scarlet fev. at 2 1-2 yrs.	1 s. 1 b. 1 u. 1 co.	"	6	"
Scovel, Stephen	"	1855	10	Congenital.	" "	Mass.	4	mo.
Seaman, Mortimer L.	Plymouth Hill,	1818	29	Lost hearing in infancy		Friends.	3	ys.
Seavens, Clara E.	Weston, Mass.	1849	9	Congenital.		Conn.	2	mo.
Seiders, Emma J.	Waldoboro', Me.	1855	13	Measles at 1 year.		Mass.	5	ys.
Seiders, Luella	"	1824	11	Illness at 2 yrs.		Maine.	5	"
Sekell, Mercy A.	Taunton, Mass.	1865	12	Fall at 1 yr.		"	6	"
Selden, Silence	Hartland, Conn.	1838	13	Spotted fever at 10 mo.		Vermont.	5	mo.
Selleck, Augustus	Greenwich,	1825	18	Whoop, cough at 1 yrs.		Mass.	4	ys.
Shackford, Thomas	Boston, Mass.	1832	12	Fever in infancy.		Friends.	6	"
Shackley, Albert S.	North Berwick, Me.	1852	17	Illness in childhood.		Mass.	7	mo.
Sharp, Ann	Boston, Mass.							
Sharts, Herman H.	Hudson, N. Y.							
Shaw, Arad K.	Bradford, Vt.							
Sheldon, Sophronia	Ludlow, Mass.							
Sheldon, Edward W.	Salem, "							
Sherman, Louis	Hingham, "							

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad.	Age.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Sherman, Randilla	Lisbon, N. H.	1847	19	Fever at 2 yrs.		N. Hamp.	5 yrs.	Married a deaf mute.
Sherman, Reuben S.	Dover, Vt.	1826	18	Spotted fever at 5 mo.		Vermont.	3 "	A farmer; married a deaf mute.
Simons, Henry	Southbury, Conn.	1844	12	Congenital.		Conn.	5 "	A shoemaker; married a deaf mute.
Skinner, John	Pomfret, Ohio.	1841	12	"	1 uncle.	Friends.	6 "	
Skinner, Sherman	Johnston, Ohio.	1830	17	"		Conn.	2 1/2 "	A machinist.
Slate, Charley D.	Windsor Locks, Ct.	1855	8	"		Mass.	8 "	Now a pupil.
Slatery, Patrick	Boston, Mass.	1862	9	"				
Slauter, Hiram F.	W. Stockbridge, Mass.	1844	13	Measles at 2 yrs.				
Sloan, Drusilla J.	Pendleton, S. C.	1845	11	Congenital.	1 sister & 1 bro.	S. Carolina.	5 "	Died at the Asylum.
Sloan, Ellen T.	"	1845	13	"	" " 1 bro.	"	4 "	" "
Sloan, Robert H.	"	1848	10	"	2 sisters.	S. Carolina.	4 "	" "
Slocum, Abigail	Portsmouth, R. I.	1845	25	"	3 sis. & 1 bro.	S. Carolina.	3 "	
Slocum, Mary E.	"	1845	13	"	" " 1 "	R. I.	2 "	Married a deaf mute; dead.
Slocum, Patience E.	Valley Falls, "	1854	11	"	2 brothers.	"	6 "	
Slocum, Peleg	Portsmouth, "	1845	20	"	4 sisters.	"	2 "	
Slocum, William F.	Valley Falls, "	1852	10	"	1 bro. and 1 sis.	"	5 1/2 "	A baker.
Sloot, James	Vassalboro', Me.	1842	17	Ulcers in head at 1 yr.		Maine.	5 "	Dead.
Small, Albert A.	West Danville, "	1863	18	Congenital.	1 sis. & 7 oth. rel.	"	5 "	Now a pupil.
Small, Ashley B.	"	1860	11	"		"		
Small, Edward L.	Bowdoinham, "	1854	13	"	3 brothers.	Vermont.	2 1/2 "	Died at the Asylum.
Small, Elizabeth F.	Hartland, Vt.	1857	11	Scarlet fever at 9 mos.		Mass & F'ds.	8 "	
Small, Frances E.	Truro, Mass.	1863	23	Congenital.	1 bro. & 7 relat.	Maine.	3 "	
Small, George B.	West Danville, Mo.	1865	12	"	3 brothers.	Vermont.	6 "	Now a pupil.
Small, Marshall H.	Hartland, Vt.	1860	12	Brain fever at 18 mo.		Maine.		
Small, Walter R.	Bowdoinham, Me.	1862	11	Congenital.	3 brothers.	Vermont.	4 "	Now a pupil.
Smart, Samuel	Hartland, Vt.	1841	14	Illness at 1 year.		N. Hamp.	5 "	Died at the Asylum.
Smith, Almos	Campton, N. H.	1850	12	Congenital.	3 bro. and 1 sis.	"	6 "	A farmer.
Smith, Amos	New Boston, N. H.	1841	9	Scarlet fever at 7 yrs.		Mass.	3 "	A clerk; married a deaf mute.
Smith, Artemas	Cambridgeport, Mass.	1840	17	Fever at 8 mos.		Vermont.	3 "	Married a deaf mute.
Smith, Artemas	Wilmington, Vt.	1834	12	Ulcers in head in infan.		Mass.	5 "	
Smith, Caroline A.	Salem, Mass.	1842	15	Congenital.	3 bro. and 1 sis.	N. Hamp.	5 "	Died at the Asylum.
Smith, Charles B.	New Boston, N. H.	1819	22	Illness at 1 1/2 yrs.		Friends.	6 "	A mechanic; married a deaf mute.
Smith, Colonel	Burlington, Conn.	1825	15	Congenital.	2 bro. and 1 sis.	Mass.	4 "	A farmer; married.
Smith, Consider	Hawley, Mass.	1822	17	"	2 " 1 "	"	5 "	" "
Smith, Elihu	"	1861	12	"	1 s., 2 a. & o. rel.	"		Now a pupil.
Smith, Freeman N.	Chilmark, "							

Smith, George	Springfield, Mass.	1864	17	Brain fever at 8 yrs.	1 bro. & 2 child.	Mass.	1 yr.	Now a pupil.
Smith, Hannah	New Sharon, Me.	1842	33	Congenital.	3 bro. and 1 sis.	Herself.	5	Married a deaf mute
Smith, Ivers	New Boston, N. H.	1845	12	"	1 sis. & 1 son.	N. Hamp.	4	Married a deaf mute; dead.
Smith, Mary	Chilmark, Mass.	1825	14	"		Mass.	2½	Dead.
Smith, Mary E.	East Lyme, Conn.	1855	15	"		Conn.	6	Now a pupil.
Smith, Mary J.	East Hartford, "	1865	8	"		Conn.	"	Dead.
Smith, Nathan A.	Milford, "	1844	12	"	3 cos. & 2 o. rel.	Conn.	"	Now a pupil.
Smith, Orlando A.	Roxbury, Mass.	1863	10	"		Mass.	5½	Married.
Smith, Sally	Chilmark, "	1825	19	"	1 sis. & oth. rel.	"	5	Now a pupil.
Smith, Sarah	New Boston, N. H.	1845	10	"	4 brothers.	N. Hamp.	"	Married.
Smith, Sophia	Westfield, Mass.	1825	21	Illness at 5 years.		Mass.	5	A seamstress.
Smith, Thomas	New Boston, N. H.	1837	16	Congenital.	3 bro. and 1 sis.	N. Hamp.	4½	Married a deaf mute.
Smith, William S.	Hawley, Mass.	1825	15	"	2 " " 1	Mass.	4	A mechanic; mar. a deaf mute; dead.
Smithson, William	Port Deposit, Md.	1856	16	"	1 sister.	Friends.	2	A mechanic; married.
Smyth, Emma M.	Newport, R. I.	1857	9	"		R. I.	8	
Snow, Dolly A.	Winchester, N. H.	1827	21	Spotted fever at 3 yrs.		N. Hamp.	3	Married a deaf mute.
Somes, Harriet J.	Lowell, Mass.	1859	9	Ulcers in head at 1 yr.		Mass.	6	
Soper, Ellen J.	"	1866	9	Congenital.	2 bro. & 1 cous.	"	"	Now a pupil.
Soper, Isaac N.	"	1861	10	"	1s, 1 br., & 1 cos.	"	"	"
Southwick, Henry	Newport, R. I.	1845	16	"		Friends.	1	
Southwick Samuel S.	Salem, Mass.	1843	13	"		Mass.	4½	A mechanic.
Southworth, James	Saybrook, Conn.	1818	12	"		Conn.	4	A mechanic; married.
Sparrow, Wilber N.	Eastham, Mass.	1864	11	Scarlet fever at 5 yrs.		Mass.	2½	Now a pupil.
Spear, Sarah A.	Randolph, "	1843	12	Congenital.		"	3	Dead.
Spencer, Anstrus R.	Southbridge, "	1857	19	"		"	"	
Spillane, Mary	East Boston, "	1865	14	Brain fever at 3 yrs.		Conn.	8	Now a pupil.
Spaine, Mary	Portland, Conn.	1856	8	Measles at 6 mo.		Mass. & F'ds.	7	A teacher.
Spofford, Fisher A.	Bucksport, Me.	1819	11	Infl'n on brain at 2½ y.		Friends.	4½	Died at the Asylum.
Sprague, John G.	Toronto, C. W.	1850	9	Scarlet fever at 3 yrs.		"	2	Teacher; married a deaf mute.
Springs, Richard C.	York District, S. C.	1831	25	Congenital.		Maine.	2	Died at the Asylum.
Standley, Eliza	Steuben, Me.	1850	22	Congenital.		Conn.	5	A mechanic; dead.
Stanley, Don Alonzo	Berlin, Conn.	1817	10	Spotted fever at 11 mo.		S. Carolina.	5	A boot-maker.
Stansell, Ellen	Barnwell, S. C.	1846	11	Congenital.		Maine.	5	Married a deaf mute; dead.
Staples, Francis M.	Swanville, Me.	1847	13	Congenital.		Friends.	4	A shoemaker.
Starr, Jason	Catskill, N. Y.	1817	23	Illness at 2 yrs.	1 sister.	Maine.	5	Married a deaf mute.
Stearns, Chester R.	Bradford, Me.	1840	13	Congenital.	1 brother.	Maine.	5	"
Stearns, Ruth J.	"	1840	15	"	2 sec. cousins.	Mass.	6	"
Stebbins, Helen M.	Deerfield, Mass.	1845	10	Dropy in head at 20 m.	1 b., 1s & a 2d c'n	Friends.	5	A farmer; dead.
Stebbins, Polly	"	1817	24	Congenital.	2 sis.	"	4	
Stebbins, Roland	"	1817	22	"		"	"	

List of Pupils—Continued.

NAME.	RESIDENCE.	Time of Age.	Cause of Deafness.	Deaf and Dumb relatives.	How sup'p'd.	Time under instruc.	REMARKS.
Steele, William	Thompsonville, Conn.	1848/11	A fall at 6 mos.		Conn.	5 yrs.	A mechanic; married a deaf mute.
Steeve, Charles H.	Gloucester, R. I.	1846/13	Scarlet fever at 6½ yrs.		R. Island.	4 "	Dead.
Stetson, Daniel	Salem, Mass.	1825/19	Illness.		Mass.	4 "	A mechanic; married a deaf mute.
Stevens, Charles	Westbrook, Me.	1842/22	Ulcers in head at 3 m.		Maine.	4 "	A mechanic.
Stevens, Ephraim	Andover, Mass.	1825/17	Fever at 1½ years.		Mass.	5 "	A mechanic.
Stevens, Ira B.	N. Haverhill, N. H.	1834/14	Infia'n in head at 5 yr.		N. Hamp.	3½ "	
Stevenson, Eliza M.	Newburgh, Me.	1847/11	Ulcers in ears at 2½ yr.		Maine.	5 "	
Stevenson, Mary J.	Swanzy, N. H.	1850/9	Congenital.	1 sister.	N. Hamp.	2½ "	Died in the Asylum.
Stevenson, Sarah B.	"	1850/14	"	1 sister.	"	4½ "	
Steward, Pembroke S.	St. Albans, Me.	1850/12	Ulcers in head at 1 mo.		Maine.	6½ "	A farmer.
Stickney, Israel	Athens, Vt.	1831/15	Congenital.	1 sister.	Vermont.	3 mos.	Died at the Asylum.
Stickney, Mercy	"	1829/16	"	1 brother.	Vermont.	4 yrs.	Now a pupil.
Stillman, Henry D.	Cumberland, R. I.	1861/12	Scars in head at 4 m.		N. Hamp.	6 "	
Stulphen, Joseph D.	North Conway, N. H.	1855/10	Cold or fall at 1½ yrs.		Mass.	2 mos.	Idiotic.
Stoddard, James M.	Boston, Mass.	1866/9	Scarlet fev. at 2½ yrs.		Mass.	6 yrs.	Married a deaf mute.
Stoffel, Anna M.	New Haven, Conn.	1859/11	Measles at 6 mos.		Conn.	5½ "	Married a deaf mute.
Stone, Ann R.	Oakham, Mass.	1838/19	Ulcers in head in infan'y		Mass.	1 "	Married a deaf mute; dead.
Stone, Elizabeth D.	Dorchester, Mass.	1825/14	Unknown.		Mass.	8 "	Now a pupil.
Stone, Ira	Limington, Me.	1823/20	"		Mass.	4 "	A teacher.
Stone, Sally E.	Natick, Mass.	1865/10	Scarlet fever at 1½ yrs.		Maine.	6 "	
Storrs, Sarah W.	Springfield, Mass.	1844/11	Whoop, cough at 1 yr.		N. Hamp.	4½ "	
Stover, Martha A.	Appleton, Me.	1853/15	Illness at 6 mos.		Mass.	3 "	
Stratton, William	Rindge, N. H.	1847/15	Congenital.		Mass.	5½ "	Married a deaf mute.
Street, Katherine L.	St. John, N. B.	1853/13	"		Conn.	4 "	Married a deaf mute.
Streater, Fanny	Wrentham, Mass.	1825/15	Infia'n in head at 2 yrs.	1 brother.	Mass.	2 "	A farmer.
Strickland, Almira	Salem, Conn.	1828/20	Congenital.	1 sister.	Mass.	2½ "	Married.
Strickland, Anabel	West Stockbridge, Ms.	1821/19	"		Vermont.	3 "	Dead.
Strong, Anabel	Rutland, Vt.	1834/12	Dropsy in head at 1½ yr.		Conn.	4 "	
Strong, Charles W.	Berlin, "	1849/10	Measles at 1½ yr.	1 bro. & 1 niece.	Mass.	2½ "	
Strong, Lavinia	Tolland, Conn.	1826/16	Congenital.	1 brother.	Vermont.	3 "	
Strong, Sally	Philadelphia, Penn.	1830/20	"	1 sister.	Mass.	4 "	
Stuart, Jane	"	1818/21	"		Mass.	1½ "	
Stuart, Samuel	Wellfleet, Mass.	1818/15	"		Mass.	5 "	A mechanic; dead.
Stubbs, Eliza A. K.	"	1831/11	"		Mass.	4 "	Married a deaf mute.
Sturges, Sarah A.	Fairfield, Conn.	1827/12	"		Mass.	4 "	Dead.

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List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad.	Age.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Thomas, Frances E.	Athens, Geo.	1821	8	Congenital.		Friends.	6 yrs.	Married.
Thomas, Harriet A.	New Bedford, Mass.	1859	13	Measles at 18 mo.		Mass.	5 "	
Thomas, Robert M.	Oakville, C. W.	1857	11	Congenital.		Friends.	6 "	
Thomas, Sarah A.	Hartford, Conn.	1836	11	Dropsy in head at 1 y.		Conn.	5 "	
Thompson, Frank B.	Newark, N. J.	1863	12	Congenital.		Friends.	2 "	
Thompson, George W.	West Bloomfield, N. Y.	1829	15	Illness in infancy.		"	3 1/2 "	A farmer.
Thompson, Joseph W.	Brunswick, Geo.	1842	12	Scarlet fever at 4 yrs.		Georgia.	4 "	A mechanic; married.
Thompson, Samuel W.	Chopachet, R. I.	1847	10	Brain fever at 10 mo.		R. I.	6 "	A clerk.
Thresher, Julius	Lowell, Mass.	1837	12	Illness at 8 mos.		Vt. & Mass.	5 "	A mechanic.
Tift, Lucius	Groton, Conn.	1824	11	Congenital.	1 second cousin.	Friends.	4 "	Dead.
Tilden, Edward	Fairlee, Vt.	1838	16	Scarlet fever in infancy.	2 bro., 3 child.	Vermont.	4 "	Married.
Tilton, Deidamia D.	Farmington, Mass.	1832	14	Congenital.		Mass.	4 "	Now a pupil.
Tilton, Ellen L.	Cheshire, "	1864	12	Lung fever.	1 bro. & 1 sis.	"	4 "	A farmer; married a deaf mute.
Tilton, Franklin	Chilmark, "	1841	16	Congenital.	1 " 1 "	"	4 "	"
Tilton, Zeno	"	1841	19	"		"	4 "	Married a deaf mute.
Timberlake, Hiram	Livermore, Me.	1847	11	Scarlet fever at 3 yrs.		Maine.	4 3/4 "	A mechanic; married.
Tinkham, Jacob	Plymouth, Mass.	1825	21	Congenital.		Mass.	4 "	A mechanic; married a deaf mute.
Tiplady, Thomas T.	Salem, "	1828	13	Unknown.		"	4 "	A mechanic; married a deaf mute.
Tirrell, Geo. A.	Weymouth, "	1851	9	Congenital.	Several cousins.	"	6 "	
Tisdale, Jennie M.	No. Bridgewater, Mass	1866	8	Canker rash at 3 yrs.		"	5 "	Now a pupil.
Titcomb, Augustus	Cumberland, Me.	1840	16	Congenital.	1 bro. & 3 sis.	Maine.	5 "	A mechanic; married a deaf mute.
Titcomb, Nancy	"	1829	14	"	2 " 2 "	"	4 "	Married a deaf mute.
Titcomb, Sophronia	"	1829	12	"	2 " 2 "	Conn.	4 1/2 "	"
Tomlinson, William	Watertown, Conn.	1850	11	Scarlet fever at 3 yrs.		Conn.	6 3/4 "	A joiner.
Tomson, Mira E.	Pelham, Mass.	1848	12	Congenital.		Mass.	6 "	
Tourtelot, Cyrus A.	Thompson, Conn.	1854	18	Scarlet fever at 4 yrs.		Conn.	6 "	
Town, Ada L.	Marshfield, Vt.	1855	11	A fall.		Vermont.	6 "	Married a deaf mute.
Town, Orris T.	Franklin, "	1847	23	Scarlet fever at 9 mo.		"	3 "	Dead.
Towslee, Horace	Rupert, "	1830	16	Inflam. in head at 2 yr.	Aunt and 2 cos.	N. H. & F'ds.	4 "	A farmer; married.
Tracy, Elijah	Cornish, N. H.	1822	12	Congenital.	1 brother.	Mass.	5 "	A mechanic; twice married.
Trask, Eugene	Deerfield, Mass.	1849	10	"	1 "	"	6 "	A farmer; married a deaf mute.
Trask, John	"	1859	11	"		"	5 "	A farmer.
Trask, Peter	Whitefield, Me.	1831	17	Illness at 6 years.		Maine.	4 "	A mechanic; dead.
Treadway, Edwin	Sharon, Conn.	1828	19	Croup at 1 yr.	1 second cousin.	Conn.	4 "	"
Treat, Mary W.	Orange, "	1833	12	Congenital.		Conn.	4 "	"

Tripp, Benjamin	Alfred, Me.	1819	16	Congenital.	1 brother.	Maine.	5	4 mo.
Tripp, Charles	Charleston, Vt.	1842	16	"	1 sister.	Vermont.	5	yrs.
Tripp, Elizabeth R.	New Bedford, Mass.	1834	11	"	1 "	Mass.	5	"
Tripp, Eunice	"	1832	14	"	1 "	"	4	"
Tripp, Jacob	Alfred, Me.	1819	19	"	1 brother.	Vermont.	6	"
Tripp, Lyman E.	Charlestown, Mass.	1848	14	"	1 "	Mass.	5	"
Trufant, Mary E.	Beverly, Mass.	1836	10	"	1 "	"	5	"
Tuck, Louis C.	Barkhamsted, Conn.	1862	11	Scarlet fever at 9 yrs.	1 cousin.	Conn. & F'ds.	4	"
Tucker, Guy	Milton, Mass.	1834	16	Congenital.	1 brother.	Mass.	4	"
Tucker, Harriet N.	Billerica, "	1836	12	"		"	6	"
Tufts, Alfred	"	1848	9	"		"	8	"
Tufts, Samuel A.	Malden, "	1865	9	"		"		
Turberville, George L.	Fairfax Co., Va.	1818	20	Unknown.		Friends.	3	"
Turner, Job	Boston, Mass.	1818	12	Congenital.		Mass.	6 1/2	"
Turner, Lucy M.	So. Coventry, Conn.	1864	15	"	Parents.	Conn.	5	"
Turner, Plummer	Palermo, Me.	1836	14	Illness at 6 mo.		Maine.	3 1/2	"
Turner, Sarah A.	Clinton, Conn.	1841	24	" " 5 yrs.		Conn.	5	"
Tuttle, Jacob E.	Antrim, N. H.	1860	9	Scarlet fever at 4 mos.		N. Hamp.	5	"
Tyler, Mariette	Westford, Vt.	1840	14	Inflam. in head at 9 m.		Vermont.	3	"
Tyler, Royal G. N.	Killingworth, Conn.	1839	19	Fever at 6 yrs.		Conn.	5	"
Vaughan, Joseph	Middleboro', Mass.	1825	22	Congenital.		Mass.	2 1/2	"
Vincent, Emma A.	Heath, Mass.	1863	15	Sores in head at 5 mo.		"	8	"
Wade, Patrick	South Boston, Mass.	1856	13	Sickness at 14 mo.	1 s., 1 un., 3 co.	Maine.	5	"
Wakefield, Esther	Gardiner, Me.	1848	11	Congenital.	1 s., 1 un., 3 co.	Mass.	6	"
Wakefield, Geo. W.	Brownfield, "	1855	10	Fits.	2 nei., 2 neph., 1	Mass.	5	"
Wakefield, Hazeline	"	1820	25	Congenital.	1 sis., 1 un., 3 co.	Maine.	4	"
Wakefield, Helen	Gardiner, "	1848	14	"		Vermont.	8	"
Walbridge, Sarah L.	Randolph, Vt.	1851	12	Scrofula at 1 yr.		Mass.	6	"
Walen, Ellen	Rockport, Mass.	1846	14	Congenital.		Conn. & F'ds.	6	"
Walker, Freddie	Norwich, Conn.	1864	9	Scarlet fever at 3 yrs.	1 sister.	Conn.	5	"
Walker, Susan F.	Medford, Mass.	1818	18	Lost hearing in infancy		N. H. & F'ds.	5	"
Walsh, Margaret	Norwich, Conn.	1866	15	Congenital.		Mass.	4	"
Walworth, Mary A.	Canaan, N. H.	1831	14	Dis. in head at 4 yrs.		Friends.	2 1/2	"
Ward, Estus	Belchertown, Mass.	1828	15	Scarlet fever at 7 yrs.	1 sister.	Vermont.	5	"
Ward, Geo. P.	Crawford, Ala.	1857	20	Dis. in head at 18 mo.	1 brother.	Mass.	6	"
Ward, Silas	Rutland, Vt.	1842	15	Congenital.	1 sister.	"	5	"
Wardman, Jabez	Andover, Mass.	1855	13	Small pox at 1 1/2 yrs.	1 brother.	"	5	"
Wardman, Samuel	Ballardvale, "	1866	11	Congenital.	1 sister.	Maine.	6	"
Ware, Ackley	Middlefield, "	1825	16	Illness at 6 mos.		"		
Warren, George F.	Standish, Me.	1851	10	Congenital.		"		

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Adm.	Cause of Deafness.	Deaf and Dumb relatives.	How supp'd.	Time under instruc.	REMARKS.
Washburn, Seth C.	Randolph, Vt.	1826 14	Lost hearing at 1 yr.		Vermont.	2½ yrs.	Died at the Asylum.
Wass, Francis N.	Addison, Me.	1858 10	Scar. fever at 1 1-2 yrs.		Maine.	8 "	"
Waterbury, Albert	Dartem, Conn.	1862 17	Scarlet fever at 5 yrs.		Conn.	1 "	"
Waterman, Andrew	Thompson, Conn.	1829 22	Typhus fever at 1 y.		"	3 "	A mechanic; married.
Waterman, Fred'k J.	Thompson, Me.	1844 15	Brain fever at 3½ yrs.		Maine.	4 "	"
Waters, Otis	Leominster, Mass.	1817 26	Lost hearing at 5 yrs.		Friends.	2 "	"
Waters, Warren L.	Hartford, Conn.	1865 12	Congenital.		Conn.	"	Now a pupil.
Watson, Sarah Q.	Warner, N. H.	1838 13	"		N. Hamp.	3½ "	Dead.
Watson, Uriah	Lowell, Mass.	1840 18	Lost hear. in childh'd.	1 sister.	Mass.	2 "	A mech.; married a deaf mute; dead.
Watson, Elizabeth A.	"	1847 14	Measles at 2 yrs.	1 brother.	"	4 "	Married a deaf mute.
Watts, Francis A.	Rockville, Conn.	1860 8	Dropsy in head at 3½ y.		Conn.	4 "	Now a pupil.
Way, Horace	Stockbridge, Mass.	1830 16	Congenital.		Mass.	"	A laborer.
Weaver, Jonathan	So. Woodstock, Conn.	1866 14	"		Conn.	2 "	Now a pupil.
Webb, Ann E.	Windham, Me.	1853 11	Inflam. in head at 4 yrs.	1 brother.	Friends.	"	Now a pupil.
Webb, Clarence A.	Canterbury, Conn.	1831 14	Congenital.		Conn.	4 "	A mechanic; married a deaf mute.
Webb, James	Danbury, " "	1849 9	Inflam. in head at 3 y.	1 sister.	Friends.	5 "	A farmer.
Webb, John F.	Windham, Me.	1828 14	Spotted fever at 2 yrs.		N. H. & F'ds.	4 "	Dead.
Webster, Elizabeth C.	Plymouth, N. H.	1833 22	Scarlet fever at 2½ yrs.		N. Hamp.	4 "	A mechanic; married a deaf mute.
Webster, George	Warner,	1819 37	Congenital.		Friends.	1 "	A mechanic; married; dead.
Webster, Jonathan	Haverhill, Mass.	1829 23	Spotted fever at 2 yrs.		Conn.	3½ "	Married a deaf mute.
Webster, Marilla	Burlington Conn.	1830 15	" " 1½ yrs.		N. Hamp.	2 "	"
Webster, Mary E.	Sandwich, N. H.	1827 17	Lost hearing at 4 yrs.		Friends.	7 "	"
Welles, Maria	Glastenbury, Conn.	1858 8	Ulcers in head in infan.	1 brother.	Mass.	6 "	Married a deaf mute.
Wells, Arthur H.	Northampton, Mass.	1849 9	Congenital.	1 "	"	6 "	"
Wells, Rollin	Greenfield, " "	1849 14	"		"	6 "	"
Wells, William R.	"	1863 11	Memb. croup at 15 mo.		Vermont.	1 "	Now a pupil.
Wellington, Elbridge A.	Wayland, " "	1841 10	Scarlet fever at 1½ yrs.	1 brother.	Mass.	3 "	Died at the Asylum.
Wentworth, Beulah C.	Montpelier, Vt.	1866 10	Congenital.	1 sister.	"	6 "	Now a pupil.
Wentworth, Ella J.	Ipswich, Mass.	1864 12	Scarlet fever at 9 mo.		"	3 "	"
Wentworth, Sylvies. W.	"	1826 27	Congenital.		R. I.	8 "	A farmer.
Wescott, Jervis	Cheshire, " "	1857 11	Ulcers in head at 6 mo.		N. Hamp.	6 "	"
West, Anna I.	Coventry, R. I.	1855 13	Congenital.		F'ds. & Mass.	6 "	"
West, Betsey C.	Raymond, N. H.	1853 13	Illness at 9 mo.		"	5 "	"
West, Caroline M.	Lowell, Mass.	1861 13	Congenital.		"	"	"
West, George	Chilmark, " "			Mot., 2 sis., 1 b.			

[illegible]

List of Pupils—Continued.

NAMES.	RESIDENCE.	Time of Ad.	Age.	Cause of Deafness.	Deaf and Dumb relatives.	How supp't'd.	Time under instruct.	REMARKS.
Williams, Henry	Port Hope, C. W.	1848	8	Scarlet fever at 5 yrs.		Friends.	8 yrs.	Insane.
Williams, Lavinia M.	Hadley, Mass.	1850	11	Scarlet fever at 4½ yrs.		Mass.	7 "	Married a deaf mute.
Williams, Lucia A.	Plainfield, N. H.	1855	14	Congenital.		N. Hamp.	5 "	"
Williams, Maria A.	Lawrence, Mass.	1847	12	Whoop, cough at 8 m.	1 sister.	Mass.	6 "	Dead.
Williams, Samuel	Falmouth, Me.	1841	26	Congenital.		Friends.	1 "	A farmer.
Williamson, Etta J.	Northport, Me.	1859	11	"	2 uncles, 3 cous.	Maine.	7 "	"
Williamson, Mary F.	Stockbridge, Vt.	1859	18	Scarlet fever at 1 yr.		Vermont.	1½ "	Dead.
Willis, Earl	Monson, Mass.	1819	9	Congenital.		Mass.	4 "	A laborer; married a deaf mute; dead.
Willis, Manfred	Sudbury, "	1854	9	Scarlet fever at 4 yrs.		"	6 "	"
Williston, Thomas.	Boston, "	1819	16	Unknown.	1 brother.	"	6 "	A mechanic; married a deaf mute.
Wilson, Charles E.	Salem, "	1855	10	Congenital.	1 "	"	6 "	"
Wilson, Frederic	"	1855	9	"	2 sec. cousins.	"	6 "	"
Winchester, Ezra	Norwich, Conn.	1840	12	"		Conn. & F'ds.	6 "	A mechanic.
Wing, George	Bangor, Me.	1856	15	Typhus fever at 12 y.		Vermont.	4 "	A clerk; married.
Winslow, Aurelius	Rochester, Vt.	1832	26	Congenital.	1 bro., 1 sis. 1 co.	Maine.	4 "	A mechanic; married a deaf mute.
Winslow, Eliza	Wiscasset, Me.	1847	13	"		R. I.	4 "	"
Winsor, Phebe A.	Johnston, R. I.	1846	8	Scarlet fever at 1 yr.		Mass.	6 "	Dead.
Wise, Charles P.	Boston, Mass.	1850	8	Congenital.		"	7 "	married a deaf mute.
Wise, Henry	Monson, "	1855	9	"		"	9 "	"
Wiswell, David	Medway, "	1846	12	"	1 bro. and 2 sis.	"	5 "	A shoemaker.
Wiswell, Lucinda H.	"	1843	14	"	2 " " 1 "	"	6 "	"
Wiswell, Mary C.	"	1843	10	"	2 " " 1 "	"	5 "	"
Wiswell, Peter C.	"	1843	13	"	1 bro. and 2 sis.	"	5 "	A shoemaker; married a deaf mute.
Withington, Mary W.	Canton, "	1825	14	A fall at 2 yrs.		"	5 "	A dress maker.
Wodell, Rhoda	Westport, "	1843	15	Scarlet fever at 4½ yrs.		"	6 "	"
Wood, Augustus	Buckfield, Me.	1860	15	Whoop, cough at 1½ y.		Maine.	5 "	Married.
Wood, Benjamin	Onondaga, N. Y.	1821	27	Unknown.		Friends.	5 "	"
Wood, Eugene W.	Webster, Mass.	1861	13	Scarlet fever at 5 yrs.		"	4 "	Now a pupil.
Wood, Gilbert	Benson, Vt.	1837	10	Dis. in head at 1 yr.		Vermont.	4 "	A tinner; married a deaf mute.
Wood, Harriet	Montpelier, Vt.	1830	11	Whoop, cough at 2½ y.		"	4 "	"
Woods, Welthy A.	Plymouth, Conn.	1857	9	Congenital.		Conn.	8 "	"
Woodward, Charles A.	Hubbardston, Mass.	1856	12	Scarlet fever at 2 yrs.		Friends.	2 "	A mechanic; married; dead.
Woodward, Joseph	Ashford, Conn.	1819	21	Scarlet fever at 4 yrs.		"	4 "	"
Woodward, Roxana	Peacham, Vt.	1833	18	Unknown.		Vermont.	4 "	"
Wooster, Prudence E.	Hancock, Me.	1855	11	Congenital.		Maine.	6 "	"

Worcester, Frank	Dracut, Mass.	1845	9	Congenital.	Twin sister.	Mass. & F'ds. 6½ yrs.	A farmer.
Worcester, Susan	" "	1845	9	"	Twin brother.	Mass. & F'ds. 6½	"
Work, Mary J.	Williamstown, Vt.	1848	14	"		Vermont.	"
Wright, Ellen R.	Keene, N. H.	1847	12	Scarlet fever at 2½ yrs.		N. Hamp.	Married a deaf mute.
Wright, James D.	Oglethorpe Co., Ga.	1844	14	Disease in head at 9 m.		Friends.	A farmer.
Wright, Lusetta	Cornwall, Vt.	1844	11	Congenital.	2 sis. & a 2d cos.	Vermont.	Married a deaf mute.
Wright, Pelatiah J.	Westford, Mass.	1844	11	"	1 second cousin.	Mass.	A mechanic; married a deaf mute.
Wright, Varnum B.	" "	1844	10	Ulcers in head at 9 mo.	" "	Mass.	A mechanic.
Wright, Wealthy	Cornwall, Vt.	1848	8	Congenital.	2 sis. & a 2d cos.	Vermont.	Married a deaf mute.
Wyatt, Isaac	Randolph, "	1831	17	Spotted fever at 1½ yrs.		"	A mech.; twice married to deaf mutes.
York, Melissa J.	Gilmanton, N. H.	1864	14	Scrofula in head at 2 y.		N. Hamp.	Now a pupil.
Young, Charles W.	Wendell, N. H.	1837	21	Fever at 1 year.		"	"
Young, Ellen A.	Meredith, "	1846	10	Congenital.		"	"
Young, Jonathan	Wakefield, "	1825	27	Scarlet fever at 1 yr.		"	"
Young, George W.	Norwich, Conn.	1853	8	Congenital.	1 sister.	Conn.	A farmer.
Young, William F.	Chelsea, Mass.	1861	8	Fits at 1 year.		Mass.	Idiotic.
							5 yrs.

*Classification of Pupils in the preceding list in respect to
Residence.*

Maine,	248	Georgia,	27
New Hampshire,	170	Alabama,	4
Vermont,	195	Louisiana,	1
Massachusetts,	597	Texas,	1
Rhode Island,	52	Indiana,	1
Connecticut,	275	Illinois,	2
New York,	32	Michigan,	1
New Jersey,	7	Wisconsin,	1
Pennsylvania,	12	Ohio,	6
Maryland,	4	British Provinces,	25
District of Columbia,	2	West Indies,	1
Virginia,	11	California,	1
North Carolina,	4	West Virginia,	1
South Carolina,	19		
			<hr/>
			1700

Classification in respect to means of Support.

Maine,	239	Georgia,	19
New Hampshire,	162	U. S. Government,	1
Vermont,	187	New York,	1
Massachusetts,	557	New Jersey,	4
Rhode Island,	43	Illinois,	1
Connecticut,	235	British Provinces,	6
South Carolina,	17	Friends,	228
			<hr/>
			1700

IX. TERMS OF ADMISSION.

I. THE Asylum will provide for each pupil, board, lodging and washing ; the continual superintendence of health, conduct, manners and morals ; fuel, lights, stationery and other incidental expenses of the school room : for which, including TUITION, there will be an annual charge of one hundred and seventy-five dollars.

II. In case of sickness, the necessary extra charges will be made.

III. No deduction from the above charge will be made on account of vacation or absence, except in case of sickness.

IV. Payments are always to be made six months in advance, for the punctual fulfillment of which, a satisfactory bond will be required.

V. Each person applying for admission, must be between the ages of EIGHT and TWENTY-FIVE years ; must be of a good natural intellect ; capable of forming and joining letters with a pen, legibly and correctly ; free from any immoralities of conduct, and from any contagious disease.

Applications for the benefit of the Legislative appropriations in the States of Maine, New Hampshire and Massachusetts, should be made to the Secretaries of those States respectively, stating the name and age of the proposed beneficiary, and the circumstances of his parent or guardian. Applications as above should be made in Vermont, Rhode Island and Connecticut, respectively, to his Excellency, the Governor of the State. In all cases, a certificate from two or more of the selectmen, magistrates, or other respectable inhabitants of the township or place to which the applicant belongs, should accompany the application.

Those applying for the admission of *paying pupils*, may address their letters to the Principal of the Asylum ; and on all letters from him respecting the pupils, postage will be charged.

The time for admitting pupils is the *second Wednesday of September*, and at no other time in the year. Punctuality in this respect is very important, as it cannot be expected that the progress of a whole class should be retarded on account of a pupil who joins it after its formation. Such a pupil must suffer the inconvenience and the loss.

It is earnestly recommended to the friends of the deaf and dumb, to have them taught how to write a fair and legible hand before they come to the Asylum. This can be easily done, and it prepares them to make greater and more rapid improvement.

When a pupil is sent to the Asylum, unless accompanied by a parent or some friend who can give the necessary information concerning him, he should bring a written statement embracing specifically the following particulars :

1. The name, in full.
2. Post office address, and correspondent.
3. Day, month and year of birth.
4. Cause of deafness.
5. Names of the parents.
6. Names of the children in the order of their age.
7. Were the parents related before marriage? If so, how?
8. Has the pupil deaf-mute relatives? If so, what?

The pupil should be *well clothed*; that is, he should have both summer and winter clothing enough to last one year, and be furnished with a list of the various articles, each of which should be marked. A small sum of money should also be deposited with the Steward of the Asylum, for the personal expenses of the pupil not otherwise provided for.

Careful attention to these suggestions is quite important.

There is but one vacation in the year. It begins on the last Wednesday of June, and closes on the second Wednesday of September. It is expected that the pupils will spend the vacation at home. This arrangement is as desirable for the benefit of the pupils, who need the recreation and change of scene, as for the convenience of the Institution, thus affording opportunity for the necessary painting, cleansing, &c. The present facilities for travel enable most of the pupils to reach home on the evening of the day they leave Hartford. Every pupil is expected to return punctually at the opening of school, on the second Wednesday of September.

On the day of the commencement of the *Vacation*, an officer of the Asylum will accompany such pupils as are to travel upon the railroads between Hartford and Boston, taking care of them and their baggage, on condition that their friends will make timely provision for their expenses on the way, and engage to meet and receive them immediately on the arrival of the *early* train at various points on the route previously agreed on, and at the station of the Boston and Worcester Railroad, in Boston. A similar arrangement is made on the Connecticut River Railroads, as far as to White River Junction. No person will be sent from the Asylum to accompany the pupils on their return, but if their fare is paid and their trunks checked to Hartford, it will be safe to send them in charge of the Conductor.

23
SEVENTH ANNUAL REPORT

OF THE

EXECUTIVE COMMITTEE

OF THE

HARTFORD HOSPITAL;

PRESENTED TO THE CORPORATION,

AT THEIR

ANNUAL MEETING, APRIL 8, 1867.

HARTFORD:
PRESS OF CASE, LOCKWOOD AND COMPANY.
1867.

FORM OF BEQUEST.

ITEM. I give and bequeath to the HARTFORD HOSPITAL, in the city of Hartford, the sum of ——— dollars, to be paid by my executors out of my real or personal estate, as soon as the settlement of my affairs will permit, to the Treasurer of the said Institution for the time being, in trust, to be applied by the Directors thereof to the humane purposes of said Institution.

OFFICERS
OF THE
HARTFORD HOSPITAL,
FOR 1867.

JAMES B. HOSMER, *President.*
ALBERT DAY, *Vice-President.*
JAMES B. HOSMER, *Auditor.*
FLAVIUS A. BROWN, *Secretary and Treasurer.*

EXECUTIVE COMMITTEE.

EDSON FESSENDEN,
GEORGE B. HAWLEY,
CHESTER ADAMS.

PHYSICIANS.

SAMUEL B. BERESFORD, M. D., E. K. HUNT, M. D.,
GURDON W. RUSSELL, M. D., A. W. BARROWS, M. D.,
GEORGE B. HAWLEY, M. D., P. M. HASTINGS, M. D.

HOUSE PHYSICIAN.

CLAYTON WOODFORD, M. D.

LIBRARIAN.

GURDON W. RUSSELL.

STEWARD.

W. P. CORRIN.

MATRON.

MRS. CORRIN.

DIRECTORS CHOSEN AT THE ANNUAL MEETING, APRIL, 1867.

JAMES B. HOSMER,
CHAS. R. CHAPMAN, *ex-officio.*
ALBERT DAY,
S. S. WARD,
E. A. BULKELEY,
G. W. RUSSELL,
CHESTER ADAMS,

G. B. HAWLEY,
JAMES G. BOLLES,
LAWSON C. IVES,
EDSON FESSENDEN,
ERASTUS COLLINS,
CHARLES M. POND.

VICE-PRESIDENTS FOR LIFE BY SUBSCRIPTION OF FIVE HUNDRED DOLLARS AND
UPWARDS, ALSO, DIRECTORS FOR LIFE.

*A. S. BECKWITH,
*SAMUEL COLT,
*DAVID WATKINSON,
CHARLES BOSWELL,
JAMES B. HOSMER,
LEE & *BUTLER,

THOMAS SMITH,
*JOSEPH TRUMBULL,
WOODRUFF & BEACH,
*THOMAS S. WILLIAMS,
J. SEYMOUR BROWN,
*JOHN WARBURTON.

*Deceased.

DIRECTORS FOR LIFE BY SUBSCRIPTION OF TWO HUNDRED DOLLARS AND
UPWARDS.

T. M. ALLYN,
CHESTER ADAMS,
C. H. BRAINARD,
CHARLES BENTON,
GEORGE BEACH, JR.,
HIRAM BISSELL,
BIRCH & BRADLEY,
J. G. BATTERSON,
E. A. BULKELEY,
*THOMAS K. BRACE,
G. M. BARTHOLOMEW,
LUCIUS BARBOUR,
CASE, TIFFANY & CO.,
ELISHA COLT,
NEWTON CARTER,
H. KENDALL CARTER,
*WILLIAM L. COLLINS,
ERASTUS COLLINS,
CHARLES COLLINS,
DANIEL P. CROSBY,
CHENEY BROTHERS,
JULIUS CATLIN,
LEONARD CHURCH,
AUSTIN DUNHAM,
LEONARD DANIELS,
DAY, GRISWOLD & CO.,
JAMES DIXON,
EDSON FESSENDEN,
*EBENEZER FLOWER,
S. W. GOODRIDGE,
JAMES GOODWIN,
EDMUND G. HOWE,
*ISAAC HILLS,
HUNGERFORD & CONE,
G. B. HAWLEY,
N. M. WATERMAN,

NELSON HOLLISTER,
REV. JAMES HUGHES,
*H. HUNTINGTON,
H. & W. KENEY,
E. N. KELLOGG,
GEORGE S. LINCOLN & CO.,
*SIMEON L. LOOMIS,
C. C. LYMAN,
ROLAND MATHER,
J. & M. MERRIMAN,
*MRS. JOSEPH MORGAN,
*SAMUEL MATHER,
*WILLIAM MATHER,
*JOHN M. NILES,
C. F. POND,
HENRY A. PERKINS,
IRA PECK,
*FRANCIS PARSONS,
DANIEL PHILLIPS,
GUY R. PHELPS,
MISS ESTHER PRATT,
ROGERS BROTHERS,
E. C. ROBERTS,
*ELISHA K. ROOT,
*E. G. RIPLEY,
CHARLES SEYMOUR,
*MRS. ELIZA K. SHEPARD,
*WILLIAM L. STORRS,
O. G. TERRY,
*MILES A. TUTTLE,
WILLIAM W. TURNER,
ISAAC TOUCEY,
SAMUEL S. WARD,
GEORGE M. WELCH,
*JAMES H. WELLS,
CHARLES M. POND.

*Deceased.

SEVENTH ANNUAL REPORT

OF THE EXECUTIVE COMMITTEE OF THE HARTFORD HOSPITAL TO THE
CORPORATION, AT THEIR ANNUAL MEETING,

APRIL 8th, 1867.

THE close of a fiscal year calls upon the Executive Committee to present to the patrons of the Hospital the history of our annual labors. We have in our midst a Hospital, which, during the past year, has relieved two hundred homeless, sick, friendless and destitute persons, with a daily average of forty-four patients; yet many of our most benevolent and wealthy citizens are almost entirely ignorant that such a noble charity exists. Could these individuals be induced to visit the institution, and inquire into the merits of this work, we should be no longer laboring under pecuniary embarrassment, and be compelled to drive from our doors those who are suffering from disease, and extending their hands in their destitution for relief. Then we should not be compelled to report a deficiency of \$1,779.41, to meet our current expenses.

When we extend our inquiry into other cities, we find them providing extensive accommodations for the care of the sick and destitute. Cincinnati, Ohio, is about to erect a hospital at a cost of \$400,000. Providence has one nearly completed at the same expense. New York and Boston are continually adding new hospitals and dispensaries for the relief of the sick and destitute. Not only are these erected at great expense, but they are annually sustained by both public and private donations. It is a continued and necessary burden to provide for the destitute sick, and we must rely upon having this duty met in a charitable and Christ-like manner by our citizens.

In those large cities to which we refer, extensive dispensaries are established where the poor are furnished medicine "without money and without price," and charity physicians are appointed

to visit the sick at their homes, free of expense. The district in which the Demilt Dispensary of New York is established, contains about 110,000 inhabitants. From this dispensary, during the last year, 29,070 persons have been provided with gratuitous medical advice; 58,520 gratuitous prescriptions have been distributed among the sick; 2,414 patients have been attended at their homes by charity physicians; there have been 1,249 gratuitous vaccinations. This is the work of *one* year only, and this labor must be continued year after year to bear back the iron hand of disease and death. There are six of these dispensaries in full operation in the city of New York, besides the many hospitals of various classes whose doors are always open to the destitute sick.

It is true that our benevolent citizens have sustained the Hartford Hospital with a liberal hand; they have heard the cry of distress and have hastened to its relief, yet we are doing no more than our sister cities in this great work of charity. Hospitals were unknown to the ancients. In all the heathen world there was not a building erected nor a door opened for the suffering sick. A Christian traveller, and a worthy friend of this institution, once recounted the results of his observation in these impressive remarks: "I have wandered among the ruins of the mightiest cities of the old world; I have seen the remains of baths, temples, palaces, roadways, aqueducts, amphitheatres, tanks; but in all these ruins I never yet saw a fragment as big as a man's hand, which told that any structure ever stood, where wretched humanity might find a home, or suffering find either sympathy or support. And the same is true to this day. In the mountains of Lebanon I once met a chieftain, a man of noble and commanding form, who showed me his arm, shattered in a deadly affray. Never did I so covet the surgeon's skill as then, but I was helpless as himself, and there were no hospitals into which he could be received, and no medical skill to meet his case. As a consequence you see no men in that country with one arm, or one limb. No fractures can be repaired."

In the last report the proposition of adding new wings to the building was presented to the public. This necessity has been more urgent during the past year. Our wards have been crowded most of the time to their utmost capacity, and beds have been arranged through the center of each department. Every hos-

pital should be provided with extra beds for emergencies. We must either increase our accommodations, or refuse admission to many who are extending their hands to us in their distress. In order to accomplish this desirable object, a subscription has been presented to our citizens for the purpose of adding both wings and laundry, with other accommodations for the economical working of the institution. It is designed to erect a wing 128 feet long, extending south from the center building, and corresponding to the north wing. Under this will be a basement of 9 feet in the clear, above the level of the ground, which slopes gradually from the main building southward. In the basement, all the conveniences for the domestic department will be arranged, thus relieving a great present necessity. Beneath the basement it is proposed to place a cellar 7 feet in the clear for the heating apparatus, coal, &c.

The cross two wings will extend 45 feet east, one story and a basement, which will connect the wings now erected with the future wings. In the basement of these will be arranged the bakery and temporary laundry.

The contemplated additions will equal the present building, and when completed for the reception of patients, together with the repairs which are demanded on our present building, the expense is estimated to amount to \$60,000. There has been subscribed by our citizens, \$27,000. With this sum the Executive Committee have commenced their great work with full confidence that an all-wise God will incline the hearts of the benevolent to furnish means for the completion of so great a charity.

The fund of the institution can not be used for the erection of new buildings.

The Executive Committee are willing to make every effort to procure means, and act as a gratuitous building committee, in the erection of the proposed wings, if those whom the Lord has blessed with an abundance, will sustain them in this great effort. In order that our building might be commenced with advantage in the spring, the cellar was excavated last fall, and a walk was made from Main street through the grounds, extending around the north wing to the west side of the present building. This walk was laid out by the kindness of Mr. Weidenmann. It is 10 feet wide, and filled in from 18 inches to 4 feet deep with stones taken from the cellar. This walk, when graded, will open

an easy access from the horse-cars to the hospital, and its value is more than equal to the cost of digging the cellar. Nine boat loads of Portland stone have been placed on our grounds, sand is procured, and timber purchased and being delivered, in order that the work may be prosecuted without delay this spring. In making arrangements for additions, and preparing the cellar, and procuring materials, \$3,077.93 has already been expended.

At the opening of the fiscal year, there were 15 discharged Connecticut soldiers in the Hospital and the same number at its close. During that time, 54 discharged Connecticut soldiers had been admitted to the privileges of our institution. These brave men, when they entered the army, were thoroughly examined by surgeons appointed by the Government, and pronounced perfect in all their physical organizations. After passing through the destruction of a terrible war, having suffered from sickness, from wounds, and from all the exposure of that frightful struggle, they come back to us, some with amputated limbs, others with various diseases engrafted upon their systems, and all with constitutions shattered and broken, only a wreck of their former perfection. In some instances these patients were afflicted with a diseased condition of stumps of amputated limbs, others had false joints from imperfectly healed fractures, and some were suffering from consumption contracted in the war. One of the latter died while in the Hospital.

As good order is needful in every well regulated household, so in this institution, suitable authority has been established. The soldiers are not under military government, but are informed that the rules must be complied with, or they must be discharged. Many yield a willing obedience, conduct themselves with propriety, and are grateful for kindness received in their destitution. Others, not yielding obedience, have been discharged.

The whole number of weeks occupied by soldiers was $515\frac{4}{7}$, for which we received from the State, \$2,456.65, at an average rate of \$4.76 per week. The amount paid by soldiers from March 1st to July 1st, was \$3.00 per week; from July 1st to March 1st, 1867, was \$6.00 per week.

It cost the Hospital \$6.12 per week to provide for these soldiers, without allowing anything for rent of building and grounds, or medical attendance and general superintendence. This leaves

a loss to the Hospital of \$698.69, which must be supplied by charity, or remain a debt against the institution. Soldiers from other States, sick and destitute, are continually being admitted, for whom we have no compensation. In consequence of these accumulated burdens, the expenses exceed the receipts from all sources, and the Hospital asks imploringly of the philanthropic, generous-hearted public, that this charity may be sustained.

During the past year our fund has been increased \$7,500. One thousand dollars has been received from Mrs. Francis Parsons, the widow of our former worthy citizen and venerated president.

Five hundred dollars was received from the executor of the estate of John Grou, Esq., in compliance with his will.

Through the kindness of Mr. Alfred Smith, we have an addition to our fund of \$1,000.

The Hospital is called to mourn the death of Hon. Ebenezer Flower, who has been a Life Director of the institution, by subscription, from its foundation, and has always manifested his interest in the afflicted poor by his continued charities. His last act was to donate \$5,000 by will to this institution. The income of these several donations will annually for all time relieve the distress of a great number of the sick and destitute. It is so expended as to accomplish the greatest amount of good, with the strictest economy, and at the same time relieve a greater amount of suffering in a well regulated hospital, than is possible when the individuals are provided for at their various homes.

Death has again invaded our circle of Life Directors, and we are called upon to record the loss of Samuel Mather, Esq. We find his name upon the list of those who contributed the sum of \$1,000 for the work now in progress at the Hospital. Blessed are they who "rest from their labors and their works do follow them."

The permanent fund and income is as follows :

Watkinson Fund,	-	-	-	-	\$40,000
Beckwith	"	-	-	-	9,000
Adams	"	-	-	-	3,000
Utley	"	-	-	-	1,000
Tuttle	"	-	-	-	1,000
Pond	"	-	-	-	2,000
Parsons	"	-	-	-	1,000
Smith	"	-	-	-	1,000
Flower	"	-	-	-	5,000
Grou	"	-	-	-	500
Total Fund, -					<hr/> \$63,500

The interest received from the permanent fund has been

Interest on Watkinson Fund,	-	-	\$2,708.88
" Beckwith	"	-	740.81
" Adams	"	-	246.93
" Utley	"	-	66.50
" Tuttle	"	-	60.00
" Pond	"	-	120.00
" Parsons	"	-	66.50
Total income from Fund,			<hr/> \$4,009.62

There has been received from the State appropriation, \$2,063.09. The State has paid for the support of Connecticut discharged soldiers, \$2,465.65 ; paid by patients, \$2,423.56. In order that the institution might be relieved from the debts incurred from current expenses, James B. Hosmer, Esq., has kindly, as in former years, given the Hospital \$500 ; Charles Hosmer, Esq., \$100 ; a friend, \$100. In all cities of America and Europe annual donations are bestowed on similar institutions to defray their current expenses. Small sums can easily be spared by those whom God has blessed so bountifully with his abundance, and no language can express the amount of suffering this kindness would relieve. These Christ-like acts not only bring gladness to the distressed, but they reflect back upon the giver in the day of

sickness and death, such sweetness of consolation and holy comfort as is beyond the power of hoarded wealth to bestow.

Our Hospital is conducted with the greatest economy. It is the rule that each patient shall be provided with every thing conducive to restore him to health. The services of the physicians are gratuitous, and no persons, excepting those employed within the building, receive any compensation. We most anxiously ask for this charity to be sustained, not only by public, but also by private donations.

There is no greater benefaction than one enabling us to say to the destitute, "Here is a place provided for you in your distress."

In a recent conversation, one of our worthy city missionaries remarked that "A greenback is a sure key to the soul of the abandoned, opening that door through which their feelings are enlisted; by so doing, they will unite and ask for mercy with streaming eyes, at the Throne of Grace."

Two hundred dollars was received from the executor of the will of Patrick O'Reilly, a soldier of Company A, 1st Connecticut Cavalry. After serving his country faithfully, being destitute of relatives, he bestowed all his property on the hospital.

The total receipts from various sources amount to \$11,823.17. Total disbursements for current expenses, \$12,894.68. The average cost of each patient, not including rent of building or medical attendance, was \$6.12 per week.

The average amount to each patient from the State appropriation, was \$1.23 per week. The average amount paid by each patient, was \$1.46 per week.

There was received from the town of Hartford, \$685.48, at the rate of \$1.00 per week to Dec. 1st, 1866; after that, \$1.50 per week.

The expenses last year exceeded the income, \$707.90. The present year the expenses exceeded the income from all sources, \$1,071.51, which leaves the institution in debt \$1,779.41 at the close of the fiscal year.

By referring to the Steward's table, we shall learn that there were 45 patients in the Hospital at the opening of the year—25 males; 20 females. At the close, there were 55 patients—29 males; 26 females. During the year there were admitted 221—158 males; 63 females. There have been under medical treat-

ment, 266 patients—183 males; 83 females. Average number, 44; 176 have been discharged, recovered; 6 improved; 5 removed stationary; 24 have died.

Of those admitted, 112 were of temperate habits; 49 of intemperate; 95 were born in the United States; 126 were foreigners; 98 different towns of our State have sent patients to the institution.

From the commencement of the institution there have been admitted 1,116 patients.

The constant use of our library, proves how well it is appreciated by the convalescent patients. This fact is a sufficient recompense to those through whose liberality these books were bestowed.

The Hartford Daily Courant and Times have been gratefully received, and caused many expressions of thankfulness.

Many thanks are due to Rev. Wm. W. Niles for his faithful services as chaplain at the institution. Through his kindness, the Gospel has been preached to the inmates every Sabbath, and religious instruction frequently imparted by personal conversation to all, as occasion required.

Great credit is due the Steward and Matron, Mr. and Mrs. Corrin, for the neat and orderly manner in which the institution has been managed. The patients have been provided with every comfort consistent with the strictest economy. Although our wards have been crowded to their full capacity, neatness and order have prevailed, and uniform kindness to the patients has been sustained.

All the officers of the institution have performed their duties in a very acceptable manner.

In our Steward's report will be found a list of donors, who have kindly remembered the sick in various ways. A continuation of these favors is urgently solicited, and the institution appeals to the benevolent for liberal remembrances. We must rely in some measure upon these annual resources, to increase our income, and relieve us from pecuniary embarrassment. Every dollar received is expended for the relief of sickness and distress. It alleviates the misery of those who are destitute of home and friends when bowed down with poverty and disease. It is in strict compliance with the command of Christ, "Withhold not good from them to whom it is due, when it is in the power of

thine hand to do it. Say not unto thy neighbor, 'Go, and come again, and to-morrow I will give,' when thou hast it by thee."

We have no fear of the result, when our aims and fruits are dispassionately examined. It is a charity which has a peculiar claim on all communities, as no one is exempt from liability to require its assistance. This object can not be forgotten by the benevolent, however numerous and urgent may be all other appeals for their benefactions, neither will it be forgotten if their attention can be so arrested as to lead them to inquire into the merits of the institution.

We ask not only that it may be relieved from present pecuniary embarrassment, but that our constantly increasing labors may be sustained by annually enlarged donations. Then we may receive the recompense of "God bless you," from the sick and destitute, and the approval of the Great Physician, who has said, "Inasmuch as ye have done it unto one of the least of these, my brethren, ye have done it unto me."

EDSON FESSENDEN,	} <i>Executive</i>
G. B. HAWLEY,	
CHESTER ADAMS,	

Contributions for Erecting the proposed Wings to the Hospital.

James B. Hosmer, -	-	-	-	-	\$1,000
Samuel Mather, -	-	-	-	-	1,000
Mary A. Warburton, -	-	-	-	-	1,000
James Goodwin, -	-	-	-	-	1,000
George M. Bartholomew, -	-	-	-	-	1,000
H. A. Perkins, -	-	-	-	-	1,000
Woodruff & Beach, -	-	-	-	-	1,000
Edward G. Howe, -	-	-	-	-	1,000
Robert Watkinson, -	-	-	-	-	1,000
J. M. Niles, -	-	-	-	-	1,000
H. & W. Keney, -	-	-	-	-	1,000
Thomas Smith, -	-	-	-	-	1,000
A friend, by J. B. Hosmer, -	-	-	-	-	1,000
Calvin Day, -	-	-	-	-	1,000
C. C. Lyman, -	-	-	-	-	1,000
James G. Bolles, -	-	-	-	-	1,000
James Root, -	-	-	-	-	1,000
Mrs. Samuel Colt, -	-	-	-	-	1,000
T. M. Allyn, -	-	-	-	-	1,000
Samuel J. Tuttle, -	-	-	-	-	1,000
William F. Tuttle, -	-	-	-	-	1,000
Leonard Church, -	-	-	-	-	1,000
George Beach, -	-	-	-	-	500
William T. Lee, -	-	-	-	-	500
Daniel Phillips, -	-	-	-	-	500
George H. Clark, -	-	-	-	-	500
Charles Boswell, -	-	-	-	-	500
Francis B. Cooley, -	-	-	-	-	500
Oswin Welles, -	-	-	-	-	500
J. S. Niles, -	-	-	-	-	500
Miss E. M. Watkinson, -	-	-	-	-	500
Bolles & Sexton, -	-	-	-	-	250
Leonard Daniels, -	-	-	-	-	250
Nelson Palmer, -	-	-	-	-	100

STEWARD'S REPORT.

REPORT of the Steward of the Hartford Hospital, to the Executive Committee, for the year ending April 8th, 1867 :

Receipts of the Hartford Hospital, for the fiscal year, ending February 28, 1867.

Received from the State appropriation,

April 1st, 1866,	-	-	-	-	\$530.52
July 1st, 1866,	-	-	-	-	523.71
October 1st, 1866,	-	-	-	-	531.43
January 1st, 1867,	-	-	-	-	477.43
Total,	-	-	-	-	<u>\$2,063.09</u>

Received from the State for Soldiers,

April 1st, 1866,	-	-	-	-	\$322.37
July 1st, 1866,	-	-	-	-	315.54
October 1st, 1866,	-	-	-	-	878.01
January 1st, 1867,	-	-	-	-	949.73

Total,	-	-	-	-	<u>\$2,465.65</u>
Board of Patients,	-	-	-	-	2,423.56
Articles sold,	-	-	-	-	55.00
Donations,	-	-	-	-	806.25
Watkinson fund,	-	-	-	-	\$2,708.88
Beckwith fund,	-	-	-	-	740.81
Adams fund,	-	-	-	-	246.93
Tuttle fund,	-	-	-	-	60.00
Utley fund,	-	-	-	-	66.50
Pond fund,	-	-	-	-	120.00
Parsons fund,	-	-	-	-	66.50

Total Receipts from Fund,	-	<u>\$4,009.62</u>
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Total Receipts,	-	<u>\$11,823.17</u>
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March 1st, 1866, there was credited to the
Hartford Hospital the balance due from

the State,	-	-	-	-	\$508.28
State appropriation of 1866,	-	-	-	-	2,000.00
Total,					\$2,508.28
Drafts paid the Hospital upon orders of the Governor during the fiscal year,	-	-	-	-	2,063.09
Balance due the Hospital, March 1st, 1867,	-	-	-	-	\$445.19

*Disbursements of the Hartford Hospital for the fiscal year ending
Februrary 28, 1867.*

Breadstuffs,	-	-	-	-	\$1,152.45
Butter and Eggs,	-	-	-	-	852.06
Barn Expenses,	-	-	-	-	126.24
Furniture, Bedding, and Crockery,	-	-	-	-	1,348.81
Fuel,	-	-	-	-	1,405.18
Groceries,	-	-	-	-	1,440.54
Gas,	-	-	-	-	289.05
Insurance,	-	-	-	-	97.20
Medicine,	-	-	-	-	907.27
Meat and Fish,	-	-	-	-	2,445.28
Miscellaneous,	-	-	-	-	355.46
Repairs,	-	-	-	-	298.38
Salaries,	-	-	-	-	650.00
Vegetables,	-	-	-	-	244.83
Wages,	-	-	-	-	1,227.93
Water,	-	-	-	-	54.00
Total Disbursements,					\$12,894.68

Number of Patients who have received the benefits of the Hospital during the fiscal year ending February 28, 1867.

	Males.	Fem'ls.	Total.
The whole number of patients in the Hospital at the beginning of the year, - - -	25	20	45
Admitted during the year, - - -	158	63	221
Total number in the course of the year, -	183	83	266
Of this number there have been discharged,			
Recovered, - - - - -	132	44	176
Improved, - - - - -	4	2	6
Removed, - - - - -	2	3	5
Died, - - - - -	16	8	24
Total discharged during the year, - -	154	57	211
Remaining in the Hospital March 1st, 1867,	29	26	55
Whole number admitted to March 1st, 1867,			1,116
Whole number discharged to March 1st, 1867,			1,061
Whole number remaining to March 1st, 1867,			55

GENERAL STATISTICS.

YEAR.	Admitted.	Whole number under care.	Discharged.	Recovered.	Improved.	Removed stationary.	Died.	Greatest no. on any day.	Least number on any day.	Remaining at end of year.	Average no. for the year.
1860-1	45	45	36	23	8	2	3	14	1	13	12
1861-2	258	271	223	159	27	14	23	85	14	57	27
1862-3	107	164	145	105	16	6	18	57	11	23	18
1863-4	157	180	132	93	8	7	24	45	21	31	27
1864-5	132	163	142	102	2	9	29	31	20	21	27
1865-6	196	217	172	133	5	8	26	49	21	45	35
1866-7	221	266	211	176	6	5	24	59	29	55	44
Totals,	1116		1061	691	72	51	147				

Monthly Admissions from March 1st, 1866, to March 1st, 1867.

	Males.	Fem'ls.	Total.		Males.	Fem'ls.	Total.
March,	11	3	14	October,	11	9	20
April,	6	6	12	November,	10	9	19
May,	16	4	20	December,	7	4	11
June,	13	3	16	January,	15	4	19
July,	21	5	26	February,	8	3	11
August,	21	8	29				
September,	19	5	24	Total,	158	63	221

Occupation.

MALES.				FEMALES.			
Laborers,	-	-	81	Housekeepers,	-	-	30
Mechanics,	-	-	45	Domestics,	-	-	28
Farmers,	-	-	18	Children,	-	-	2
Children,	-	-	4	Seamstresses,	-	-	3
Seamen,	-	-	3				
Clerks,	-	-	4	Total,	-	-	221
Tailors,	-	-	2				
Physicians,	-	-	1				

Nativity.

Connecticut,	-	-	46	Rhode Island,	-	-	3
Delaware,	-	-	1	Vermont,	-	-	1
Georgia,	-	-	1	Virginia,	-	-	1
Kentucky,	-	-	1	Ireland,	-	-	97
Louisiana,	-	-	2	Germany,	-	-	12
Massachusetts,	-	-	18	England,	-	-	9
Michigan,	-	-	1	Switzerland,	-	-	2
Maryland,	-	-	2	Canada,	-	-	1
Maine,	-	-	1	Nova Scotia,	-	-	1
New York,	-	-	12	Sicily,	-	-	1
North Carolina,	-	-	1				
New Hampshire,	-	-	1	Total,	-	-	221
Ohio,	-	-	1	Americans,		95	
Pennsylvania,	-	-	2	Foreigners,		126	

Habits.

Temperate,	-	-	172	Intemperate,	-	-	49
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Disease or Cause of Death.

Consumption, - - -	13	Old Age, - - -	1
Diseased Liver, - - -	1	Paraplegia, - - -	1
Gastric Ulcer, - - -	1	Malignant Tumor, - - -	1
Hydrothorax, - - -	1	Typhoid Fever, - - -	2
Peritonitis, - - -	1	Pneumonia, - - -	1
Pyemia, - - -	1		
		Total, - - -	24
		Males, - - -	16
		Females, - - -	8

Whole number of weeks occupied by patients, was 2,192. Whole number of weeks occupied by soldiers, 515 $\frac{1}{4}$. Number of soldiers admitted, 54. Average duration of patients in the Hospital, was 9 weeks. Average cost per week for the support of each patient, \$6.12. Average amount received per week from pay patients, without including soldiers, \$1.46. Average amount received per week from the State appropriation, without including soldiers, \$1.23. Average amount received from the State for soldiers, \$4.76. The town of Hartford paid for the support of patients, \$685.48, at the rate of \$1.00 per week, to December 1st, 1866; since which time, at the rate of \$1.50 per week. Patients were received from 98 different towns in the State.

DONATIONS.

Hartford Daily Courant and Times. Mrs. Chas. J. Russ, Harper's Weekly, Frank Leslie, and Hartford Daily Post. Mrs. Geo. W. Moore, cotton shirts. Bishop Kerfoot, 3 coats, 1 vest, 3 pairs of pants. Mrs. S. S. Ward, cotton shirts. Our thanks are due to friends of the institution for solicitations for pictures. The following are among the list of contributors: Mr. E. P. Kellogg, photographs and engravings, framed. Prescott & Gage, photographs. Webster & Popkins, photographs. Henry Bryant, oil painting. Bolles & Roberts, engravings. Joseph Dart, engravings, framed. Miss Lillie Lyman, crayon drawing, oil painting. Miss Stevens, two oil paintings, framed. Mrs. Rockwood, two oil paintings, framed. E. M. Deming, engravings. Mrs. S. S. Ward, Scripture cards, Pilgrim's rolls for wards. Rev. Chas. H. Bullard, 12 copies each month of American Messenger, Christian

Banner, Child's Paper, the Child at Home, published by the American Tract Society. Rev. J. J. McCook, Mrs. McCook, Miss Mary L. Sheldon, oysters, turkey, loaf cake, for Christmas. Seyms & Co., oranges, turkey, for Christmas. Messrs. Sisson & Abbe, 50 pounds poultry, for New Year's. Prof. Simonson, 15 volumes German books. Miss Shields, 12 pairs slippers. Christ Church, 2 dressing gowns. Mrs. Beemis, rocking chair, books, old linen, &c. Mrs. Charles H. Brainard, wine, whisky. Mrs. Geo. H. Clark, books.

Mrs. Charles J. Russ, Miss Mary L. Sheldon, Mrs. George W. Moore, Mrs. Stockbridge, Miss Jennie Lyman, Mrs. Bull and others, delicacies for the patients, with frequent visits.

One barrel of alcohol has been received from the Hartford and New Haven Railroad Company, for the preservation of anatomical specimens, and advancement of the science of surgery.

Rev. Wm. W. Niles has performed the duties of chaplain to the institution. His efforts to promote the moral and spiritual welfare of the patients, by his ministrations on the Sabbath, and personal conversation, entitle him to our unfeigned thanks:

Respectfully submitted,

WM. P. CORRIN, *Steward.*

TO THE EXECUTIVE COMMITTEE HARTFORD HOSPITAL.

Admission of Patients to the Hartford Hospital.

ALL patients are admitted by a permit from one of the Executive Committee, who arrange the price per week according to the circumstances of the case, and accommodations required.

. Those who are able to contribute toward their support, are received at an agreed rate.

The ordinary charge per week, is \$5.00, which includes medical and surgical care, together with medicine and nursing.

Persons who are desirous of extra accommodations, are charged according to circumstances.

Persons who are destitute of friends and means, are provided for in various ways.

Those persons only who are carried directly from the place of accident, are admitted without a certificate from the Executive Committee.

No patients having syphilitic or contagious disease are admitted into this Institution.

The following resolutions were passed by the Directors at their annual meeting, April 17th, 1865 :

Resolved, That any person giving the sum of \$175 for the purpose of establishing a free bed, shall have the privilege of one free bed in a ward of the Hospital, for one year.

Resolved, That any person giving at one time the sum of \$3,000 for the purpose of free beds, shall have the privilege of a permanent free bed in a ward of the Hospital.

Resolved, That any person giving any specified sum for the purpose of free beds, shall have the privilege of one or more free beds in a ward of the Hospital, until the principal and simple interest of said sum shall be absorbed at the rate of \$175 per annum.

Resolved, That persons occupying free beds shall be governed by the same rules and entitled to the same privileges that govern other patients admitted to the Hospital.

HOSPITAL REGULATIONS.

PATIENTS shall not leave the Hospital grounds without permission.

No ardent spirits or other stimulating drinks shall be brought into the Hospital by the patients or their friends, nor shall patients be furnished with fruits, or any articles of food, without the knowledge and permission of the steward or medical attendant.

No patient shall enter the kitchen, cellar, or any of the domestics' apartments, under any pretence whatever, except by permission of the steward or matron.

No patient shall smoke tobacco in the house.

No male patient shall go into the women's apartments or wards, nor any female into those of the men.

There shall be no loud talking, nor any profane or vulgar language, nor any unnecessary noise or disturbance in the building, or on the grounds of the Hospital, nor shall any insulting or abusive language or conduct be allowed, either toward other patients or the attendants.

Spitting on the floor or other practices inconsistent with neatness of the building and furniture, must be avoided, and a proper regard must be observed for cleanliness in and around the Hospital.

Before lying down on their beds, patients must take off their boots and shoes, turn down the outer spread, and each patient must be responsible for the neatness of his bed when not occupied during the day.

All convalescents who are able, and who do not pay the regular charge of the Institution, shall assist generally in the police of their respective wards.

Patients will retire to their beds at or before nine o'clock, P. M., when the lights in the wards will be extinguished, except such as are absolutely necessary.

Visitors shall not be allowed within the wards except by permission from the steward, matron or medical attendant.

Visitors are not admitted on the Sabbath.

It shall be the duty of the steward to enjoin a strict observance of the above regulations, and he shall report to the Executive Committee any patient who shall continue to violate the above rules, and if occasion requires, may immediately discharge such patient from the Institution.

No officer or employee of this Institution shall accept any gift or bequest from any patient, except with the approbation of the Executive Committee.

Per order Executive Committee,

Hartford Hospital.

TREASURER'S ACCOUNT.

Dr. THE HARTFORD HOSPITAL in account with F. A. BROWN, *Treasurer*. Cr.

1866		1866		
March 1,	To balance due State Bank, -	April 1,	Rec'd from Board of Patients, -	\$2,423.56
1867			" " State Appropriation, -	2,063.09
March 1,	Paid Orders drawn on the Treasurer by the Executive Committee, -		" " State for Board of Soldiers, -	2,465.65
	13,094.68		" " Watkinson fund, \$2,708.88	
			" " Beckwith " 740.81	
			" " Adams " 246.93	
			" " Tuttle " 60.00	
			" " Utley " 66.50	
			" " Parsons " 66.50	
			" " Pond " 120.00	
			" " Donations, -	4,009.62
			" " Articles Sold, -	806.25
			" " By balance for amount of disbursements	55.00
			above receipts, -	1,979.41
	\$13,802.58			
				\$13,802.58

HARTFORD, March 1st, 1867.

F. A. BROWN, *Treasurer*.

I have examined the above account, and find it to be correct.

JAMES B. HOSMER, *Auditor*.

April 8th, 1867.

SECOND ANNUAL REPORT

OF THE

SHEFFIELD SCIENTIFIC SCHOOL

OF YALE COLLEGE:

INCLUDING

- I. THE REPORT OF THE VISITORS ON THE PART OF
THE STATE OF CONNECTICUT;
- II. THE REPORT OF THE GOVERNING BOARD AND
FACULTY OF THE SCHOOL;
- III. A STATEMENT OF THE ESTABLISHED COURSES
OF STUDY.

1866-7.

NEW HAVEN:

PRINTED BY E. HAYES, 426 CHAPEL ST.

1867.

State Board of Visitors, and Appointing Board.

Till May, 1866.

GOVERNOR,

HIS. EXC. WILLIAM A. BUCKINGHAM, Norwich.

LIEUT. GOVERNOR,

HIS HONOR ROGER AVERILL, Danbury.

STATE SENATORS,

Hon. EDWARD I. SANFORD, New Haven,	4th District.
Hon. ORLANDO T. HODGE, Robertsville,	15th “
Hon. CHARLES A. ATKINS, Mansfield,	21st “

SECRETARY OF THE STATE BOARD OF EDUCATION,
Prof. DANIEL C. GILMAN, New Haven.

SECRETARY OF THE SHEFFIELD SCIENTIFIC SCHOOL,
Prof. GEORGE J. BRUSH, New Haven.

Till May, 1867.

GOVERNOR,

HIS EXC. JOSEPH R. HAWLEY, Hartford.

LIEUT. GOVERNOR,

HIS HONOR OLIVER F. WINCHESTER, New Haven.

STATE SENATORS,

Hon. JASPER H. BOLTON, Stafford,	20th District.
Hon. LEMUEL STOUGHTON, East Windsor,	2nd “
Hon. H. LYNDE HARRISON, Branford,	6th “

SECRETARY OF THE STATE BOARD OF EDUCATION,
Rev. BIRDSEY G. NORTHROP, New Haven.

SECRETARY OF THE SHEFFIELD SCIENTIFIC SCHOOL,
Prof. DANIEL C. GILMAN, New Haven.

Corporation of Yale College.

PRESIDENT,

REV. THEODORE D. WOOLSEY, D.D., LL.D.

FELLOWS,

HIS EXC. JOSEPH R. HAWLEY, Hartford.

HIS HONOR OLIVER F. WINCHESTER, New Haven.

REV. JEREMIAH DAY, D.D., LL.D., New Haven.

REV. JOEL HAWES, D.D., Hartford.

REV. JOSEPH ELDRIDGE, D.D., Norfolk.

REV. GEORGE J. TILLOTSON, Putnam.

REV. EDWIN R. GILBERT, Wallingford.

REV. JOEL H. LINSLEY, D.D., Greenwich.

REV. DAVIS S. BRAINERD, Lyme.

REV. ELISHA C. JONES, Southington.

REV. LEONARD BACON, D.D., New Haven.

REV. HIRAM P. ARMS, D.D., Norwich Town.

HON. JASPER H. BOLTON, Stafford.

HON. LEMUEL STOUGHTON, East Windsor.

HON. HART LYNDE HARRISON, Branford.

HON. CHARLES W. BALLARD, Darien.

HON. JOHN T. WAIT, Norwich.

HON. WILLIAM E. CONE, East Haddam.

SECRETARY,

WYLLYS WARNER, M.A.

TREASURER,

HENRY C. KINGSLEY, M.A.

TREASURER'S ASSISTANT,

LUCIUS W. FITCH, M.A.

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REPORT OF THE BOARD OF VISITORS.

To the General Assembly of the State of Connecticut:

THE undersigned, constituting the State Board of Visitors of the Sheffield Scientific School of Yale College, and also, with the Secretary of the School, the Board for the Appointment of State Students, respectfully report that they have held three regular meetings during the year at New Haven, have acted upon all the applications of candidates for State Scholarships submitted to them, and have made a personal examination of the operations of the School. At a meeting held February 14, 1867, most of the Professors of the School were present, and they laid before this Board extended statements respecting the progress of the several sections, and of the general interests of the institution. These statements will be printed with this report for the information of the Legislature.

Particular attention is called to the munificence of Mr. Sheffield, whose recent gifts it will be seen have amounted to sixty thousand dollars, and whose entire donations to this institution have not been less than one hundred and sixty thousand dollars. Other generous gifts have been bestowed upon Yale College, in the benefits of which the Scientific School will share, and many valuable donations have been made to its special collections and library. The rapid growth of the School, evinced by the increasing facilities for instruction, and the increasing number

of scholars, confirms the wisdom of the General Assembly in its disposition of the National gift. While some other States have been involved in tedious and embarrassing delays, or have failed to comply with the conditions imposed by Congress, Connecticut has at once been able to reap the advantages of a well organized School of Science. By the wise combination of public and private munificence, and by the harmonious union of a new department with a time-honored and conservative seat of learning, far greater benefits have been secured to the community than could have been expected from any other course. •

We repeat the expressions of confidence and satisfaction which came from the Visitors of the previous year; and we commend this prosperous institution to the further liberality of our wise and wealthy citizens.

JOSEPH R. HAWLEY,
OLIVER F. WINCHESTER,
JASPER H. BOLTON,
LEMUEL STOUGHTON,
H. LYNDE HARRISON,
BIRDSEY G. NORTHROP,

Board of Visitors.

New Haven, April 20, 1867.

STATEMENT

RESPECTING THE PROGRESS OF

THE SHEFFIELD SCIENTIFIC SCHOOL

OF YALE COLLEGE,

Presented to the State Board of Visitors,

At their Annual Meeting, February 14, 1867,

BY THE

GOVERNING BOARD AND FACULTY OF THE INSTITUTION.

Governing Board of the Sheffield Scientific School.



PRESIDENT WOOLSEY.

PROFESSORS DANA, NORTON, LYMAN, SILLIMAN, WHITNEY,
BRUSH, GILMAN, JOHNSON, BREWER, ROCKWELL, EATON,
MARSH, AND VERRILL.

ANNUAL STATEMENT FOR 1866--7.

THE SHEFFIELD SCIENTIFIC SCHOOL, during the twelve months past, has not only been the recipient of important specific donations, but, in common with all the departments of the University to which it belongs, it has shared in other more general benefactions. The year will be memorable in the history of Yale College for the opening of the Yale School of the Fine Arts, the endowment of the Peabody Museum, and the enlargement of Sheffield Hall. All these establishments afford new evidence of the confidence which is placed in the Corporation of Yale College as trustworthy guardians of important interests, and give reason to believe that New Haven will be in the future, as it has been in the past, a favored seat of Literature and Science.

The group of institutions which are associated under the general designation of "Yale College," and are bound together under the control of one body of trustees, is now so complex, that the various members cannot rightly be regarded as isolated or distinct. They have a community of interests and aims; their courses of study are partially coincident; the same instructors are connected with different faculties; all have a common interest in the growing collections of Books, of Apparatus, of works of Art, and of objects in Natural History; and in many other respects the several colleges are so linked together that the growth and prosperity of each department is conducive to the welfare of all.

Accordingly, in referring to the opportunities now afforded for scientific education, it will be necessary to exhibit some of the advantages which accrue to the Scientific School from a connection with the older College. This is done without any desire to claim for the School the reputation or credit which belongs to the University as a whole or to any other department. It is simply meant to exhibit the means of instruction which are here at command.

I. Mr. Sheffield's continued munificence.

When the last annual statement respecting the Sheffield Scientific School was presented by the Governing Board to the Visitors on the part of the State of Connecticut, the enlargement and alteration of Sheffield Hall were in progress, at the expense of the same benefactor who had given us this edifice six years before. Within the past twelve months these improvements have been completed.

Before referring to any other topics, the officers of the school, therefore, desire in this public manner to acknowledge with gratitude the continued munificence of JOSEPH E. SHEFFIELD, Esq., of New Haven. His successive donations to this department of Yale College, amounting to more than \$160,000, have been so timely, and have moreover been bestowed with so much discernment respecting the needs of a School of Science, that the community will be under lasting and manifold obligations to his enlightened liberality. His recent gifts, including the enlargement and alteration of Sheffield Hall, the purchase of astronomical instruments, and the establishment of a library fund, have reached the sum of SIXTY THOUSAND DOLLARS. The value of his personal supervision of this outlay cannot be estimated in figures. Regard for the modesty which has been characteristic of the donor in all these large gifts precludes us from saying more than that his name will always be held in honor in connection with the institution which his liberality is building up.

II. Description of Sheffield Hall, as enlarged and refitted.

In view of the recent changes, the Board believe that a description of the building which is owned and occupied by the School will be acceptable at the present time to the State Visitors and to the public. By means of the diagrams which accompany this statement, a clear idea may be obtained of a somewhat complicated structure, which has grown with the growth of the institution, and is now conveniently adapted to the requirements of the various sections into which the School is divided.

Sheffield Hall is situated in Grove street, fronting College street, nearly a quarter of a mile north of the College square.

It is built of stone and brick covered with stucco, and consists of a principal three story structure, and two wings (each of two stories), now connected in the rear by another three story building. There are three public entrances on Grove street, of which the central one is the chief, leading to all portions of the building; the eastern door leads to the principal room of the Engineering Class and to the Metallurgical Museum above it; and the western door leads to the Chemical Laboratory.

There are two projecting towers—one in front, at the main entrance, and one at the northwest corner of the building. The principal tower in front is ninety feet high and sixteen feet square. In the second and third stories are studies for two of the professors. Above these rooms is the belfry-clock with its four dials, and surmounting the structure is a revolving turret in which the equatorial telescope is placed. A description of this instrument and of the mode in which it is mounted will be subsequently given.

The tower clock was made by Messrs. E. Howard & Co., of Boston. It has a wooden pendulum rod eight feet in length, with a zinc compensation-tube below the bob, specially ordered for this clock. The bob is of cast iron, and about twice as heavy as those usually furnished by the makers. The rate has thus far proved to be nearly uniform and quite satisfactory. The clock is set anew to zero, whenever its error amounts to half a minute. This has occurred but twice since August last. The hours are struck on a fine-toned bell of 675 lbs. weight, suspended in a separate bell-tower on the main roof, some twenty-five feet from the clock.

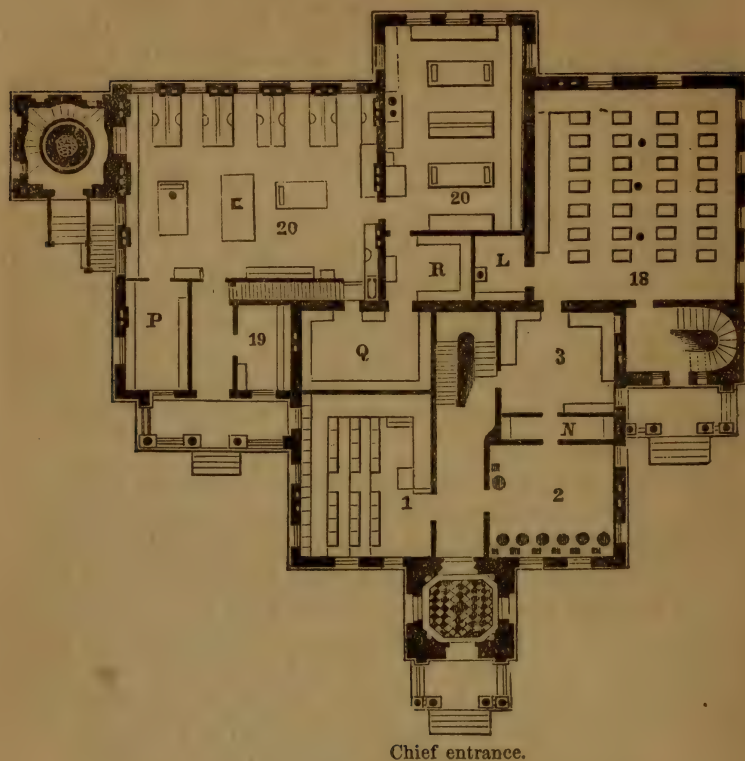
The northwestern tower, sixteen feet square and fifty feet high, was built for the reception of a Meridian Circle, a particular account of which will be found below.

The extreme length of the edifice from the western tower to the east side is 117 feet; and the extreme depth is 112 feet. The three cuts which are given on the following pages exhibit the arrangement of rooms on each of the three stories. The basement, which is not here represented, contains a Janitor's apartment and a metallurgical laboratory, in addition to the hot-air furnaces, store rooms, etc.

The architect under whose direction the enlargement was carried forward was Henry Austin, Esq., the masonry was by Messrs. Perkins & Chatfield, and the carpentry by Charles Thompson.

SHEFFIELD HALL.

PLAN OF THE FIRST STORY.

**DESIGNATION OF THE ROOMS.**

(The numbers and letters correspond with those which are affixed to the doors of the several apartments.)

- No. 1, Recitation-room, in Mathematics, Physics, etc.
- " 2, " " " Engineering, etc.
- " 3, Exhibition-room for engineering models, etc.
- " 18, Drawing-room for the Engineering and other classes.
- " 19, Chemical Assistant's office.
- " 20, 20, Chemical Laboratory.
- L, Closet.
- P, Balance-room.
- Q, Store room.
- R, Chemical reagent room.

SHEFFIELD HALL.

PLAN OF THE SECOND STORY.



DESIGNATION OF THE ROOMS.

(The numbers and letters correspond with those which are affixed to the doors of the several apartments.)

No. 4, Prof. Brewer's study.

" 5, Recitation-room in Physical Geography, etc.

" 6, Prof. Rockwell's study.

" 7, Recitation-room in Modern Languages, Mechanics, etc.

" 9, Metallurgical Museum.

" 10, Agricultural Lecture-room.

" 11, Chemical Lecture-room.

" 12, Private Chemical Laboratory.

" 13, Prof. Brush's study.

G, Prof. Johnson's study.

SHEFFIELD HALL.

PLAN OF THE THIRD STORY.



DESIGNATION OF THE ROOMS.

(The numbers and letters correspond with those which are affixed to the doors of the several apartments.)

No. 8, Public Lecture-room.

“ 15, Library.

“ 16, Librarian's room.

A, Prof. Lyman's study.

B and C, Apparatus-rooms.

H, Photographic Laboratory.

I, J, Dormitories.

K, Store-room.

The principal Observatory is reached by the stair case which leads to the Library-room (No. 15), and is thence continued till it meets a passage way leading into the tower.

III. The Peabody Museum of Natural History.

It is already well known that GEORGE PEABODY, Esq., of London, in October last made the generous donation of one hundred and fifty thousand dollars to found "in connection with Yale College" a Museum of Natural History. Although this munificent gift is designed to benefit all departments of the University, it will obviously and necessarily be of more immediate advantage to the students of Natural Science connected with this school; and hence the donor's letter to his Trustees, and the accompanying instrument of gift, may be fitly given here.

MR. PEABODY'S LETTER.

NEW YORK, OCT. 22, 1866.

To Professor JAMES. D. DANA, Hon. JAMES DIXON, Hon. ROBERT C. WINTHROP, Professor BENJAMIN SILLIMAN, Professor GEORGE J. BRUSH, Professor OTHNIEL C. MARSH, and GEORGE PEABODY WETMORE, Esq.

GENTLEMEN:—With this letter I enclose an instrument giving to you one hundred and fifty thousand dollars (\$150,000), in trust for the foundation and maintenance of a MUSEUM OF NATURAL HISTORY, especially of the departments of Zoology, Geology, and Mineralogy, in connection with Yale College.

I some years ago expressed my intention of making a donation to this distinguished institution, and convinced as I am of the importance of the natural sciences, and of the increasing interest taken in their study, it now affords me great pleasure to aid in advancing these departments of knowledge.

The rapid advance which natural science is now making renders it necessary to provide for the future requirements of such a museum, as well as its present wants, and I trust that the portion of the fund designed for this purpose will be found sufficient.

On learning of your acceptance of this trust, and of the assent of the President and Fellows of Yale College to its conditions, I shall be prepared to pay over to you the sum I have named, and I may then have some additional suggestions to make, in regard to the general management of the trust.

Confident that under your direction this trust will be faithfully and successfully administered,

I am, with great respect, your obedient servant,

GEORGE PEABODY.

THE INSTRUMENT OF GIFT.

I hereby give to JAMES DWIGHT DANA, of New Haven, Conn.; JAMES DIXON, of Hartford, Conn.; ROBERT C. WINTHROP, of Boston, Mass.; BENJAMIN SILLIMAN, of New Haven, Conn.; GEORGE JARVIS BRUSH, of New Haven, Conn.; OTHNIEL CHARLES MARSH, of New Haven, Conn.; and GEORGE PEABODY WETMORE, of Newport, R. I., on his attaining his majority, the sum of one hundred and fifty thousand dollars, to be by them or their successors held in trust to found and maintain a

Museum of Natural History, especially of the departments of Zoology, Geology and Mineralogy, in connection with Yale College, in the city of New Haven, State of Connecticut.

Of this sum I direct that my said trustees devote a part, not to exceed one hundred thousand dollars, to the erection, upon land to be given for that purpose, free of cost or rental, by the President and Fellows of Yale College, in New Haven, of a fire-proof museum building, adapted to the present requirements of these three departments of science, but planned with especial reference to its subsequent enlargement; the building, when completed, to become the property of said college for the uses of this trust, and none other.

I further direct that the sum of twenty thousand dollars be invested, and accumulate as a building fund until it shall amount to at least one hundred thousand dollars, when it may be employed by my said trustees, or their successors, in the erection of one or more additions to the museum building, or in its final completion; the land for the same also to be provided free of cost or rental by the President and Fellows of Yale College, in New Haven, and the entire structure when completed to be the property of Yale College, for the uses of this trust and none other.

I further direct that thirty thousand dollars, the remaining portion of this donation, be invested, and the income from it be expended by my said trustees, or their successors, for the care of the museum, increase of its collections, and general interests of the departments of science already named; the part of the income remaining after providing for the general care of the museum to be apportioned in the following manner: three sevenths to zoology, three sevenths to geology, and one seventh to mineralogy; the said collections, as well as the museum building, to be exclusively for the benefit of the various departments of said college.

The Board of Trustees I have thus constituted shall always be composed of seven persons, of whom not more than four shall at any one time be members of the Faculty of Yale College. They shall have the general management of the museum, keep a record of their doings, and annually prepare a report setting forth the condition of the trust and funds, and the amount of income received and paid out by them during the previous year. This report, signed by the trustees, shall be presented to the President and Fellows of Yale College, in New Haven, at their annual summer session, and be by them filed in the archives of said college.

In the event of the death or resignation of either of my said trustees, I direct that his successor be the Governor of Connecticut, who, *ex officio*, shall forever afterward be a member of the Board. Any other vacancy that may occur in the Board of Trustees, either by resignation or by death, shall be filled by the remaining trustees within a reasonable time after such vacancy shall have occurred.

I give to my said trustees, and their successors, the liberty to appoint a treasurer, and to enter into any agreements with the President and Fellows of Yale College, not inconsistent with the terms of this trust, which may in their opinion be expedient.

GEORGE PEABODY.

New York, Oct. 22, 1866.

This generous donation provides for one great and pressing want of the University—a fire-proof Museum building for preserving the extensive and valuable collections which have been accumulating during the last half-century, and are now rapidly increasing. It is understood to be the intention of the Trustees to commence the erection of the first wing of the Museum at an early day. When completed, this part will, it is thought, be amply sufficient for the requirements of the immediate future, or until the reserved building-fund shall have increased sufficiently to provide for the erection of the main or central building; and this in turn will serve until the completion of the whole structure.

Students of Natural History in all departments of Yale College, and in all time to come, will be grateful to Mr. Peabody for thus rendering secure the collection and preservation of such a Museum as the institution has long been in need of.

IV. The Yale School of the Fine Arts.

Early last autumn the edifice was finished which has been erecting on the College square during two years past as the Yale School of the Fine Arts. The founder, AUGUSTUS R. STREET, Esq., of New Haven, did not live to see the completion of his munificent gift. The building affords ample facilities for the exhibition of works of art and for the instruction of classes in the various arts of design. As the council of the School have not yet made an announcement of their plans, it would be premature in this place to do more than express a lively appreciation of the value of Mr. Street's benefaction, and the belief that the complete organization of such a School of Design as he contemplated would be specially advantageous to the students of natural history, and of engineering and architecture, in this department, as well as to those who intend to make some branch of the Fine Arts a profession.

Prof. BAIL, who has been the Instructor of Drawing in the Sheffield School for several years past, is now occupying rooms in the new Art building, and a number of our students are receiving his instructions in that place.

V. The Commencement of a Library.

After completing the enlargement of our building, Mr. Sheffield fitted up one of the most spacious rooms as a Library and Reading Room, providing for it not only the necessary shelves, and the

books of record, but also the carpet, table, desk, and seats—all of them of choice material and design. According to his expectation, this room has been used for the stated meetings of the Faculty, the Board of Visitors, and the Connecticut Academy of Arts and Sciences. The Trustees of the Peabody Museum and also the American Oriental Society met here in October last.

Mr. Sheffield also presented to the Corporation of Yale College, for the use of the School, the sum of ten thousand dollars, the income of which is to be applied to the purchase of books for this department of the College. The following is his letter:

NEW HAVEN, APRIL 20th, 1866.

TO THE PRESIDENT AND FELLOWS OF YALE COLLEGE:

Dear Sirs,—I present to Yale College, for the use and benefit of the "Sheffield Scientific School of Yale College," the enclosed certificate of ten thousand dollars in the stock of the New Haven and Northampton R. R. Company, the income of which, forever, is to be invested in such books as the Faculty, or Board of control, of said Scientific School, or the Library committee thereof, shall deem most useful to said school. Said income (which may be relied upon as six per cent. per annum, free of taxation) is to be invested annually, or from time to time, as said library committee may find most expedient and useful.

The books so purchased shall be plainly labelled, either on the cover or inside, thus: "*Library of the Sheffield Scientific School of Yale College, Sheffield Collection*;" and shall, as fast as purchased, be registered in a book prepared for that purpose, stating the date of purchase, title of the work, number of volumes, and the cost, so as to form a running catalogue of the collection and its cost.

I ask no further acknowledgment of this donation than that this letter be transcribed into the book prepared for the registry of this infant library, and that its receipt be noted in the records of the college.

I am, very respectfully, your obedient servant,

JOSEPH E. SHEFFIELD.

By the liberality of a few friends of the institution, the additional sum of two thousand dollars was contributed, to be immediately expended in books which are needed as the nucleus of a Reference Library. These subscriptions were as follows:

HON. WILLIAM W. BOARDMAN,	New Haven,	\$250.00
JARVIS BRUSH, Esq.,	New Haven,	100.00
TREDWELL KETCHAM, Esq.,	New York,	500.00
Messrs. PERKINS & CHATFIELD,	New Haven,	200.00
JOSEPH SAMPSON, Esq.,	New York,	500.00
HENRY TROWBRIDGE, Esq.,	New Haven,	100.00
HON. HARMANUS M. WELCH,	New Haven,	100.00
JOHN D. WHEELER, Esq.,	New Haven,	250.00
		<hr/>
		\$2,000.00

On taking possession of the Library room, the officers of the school also presented to the library important series of books.

The following periodicals are now received in the reading room. Many similar journals, which might be looked for in this list, are received in part by the Library of Yale College and in part by the Professors privately.

AMERICAN.

Title.	How received.
American Journal of Science and Arts.	By gift of the Editors.
Scientific American.	"
American Artisan.	By subscription.
American Rail Road Journal.	"
American Gas Light Journal.	"
American Journal of Mining.	"
American Journal of Pharmacy.	"
American Farmer.	By gift of Messrs. Silliman & Dana.
Horticulturist.	By subscription.
American Agriculturist.	By gift of the Publishers.
Journal of the N. Y. State Agricultural Society.	By gift of the Society.
American Journal of Horticulture.	By subscription.
New England Farmer.	"
Southern Planter.	By gift of the Publishers.
Practical Entomologist.	By subscription.
California Mining and Scientific Press.	By gift of Prof. Brewer.
California Farmer.	By gift of the Editors.
Journal of the Franklin Institute.	By subscription.
American Naturalist.	"
Journal of Conchology.	"
Proceedings of Boston Society of Natural History.	By gift.
Transactions of the Connecticut Academy.	By gift of the Academy.
American Publishers' Circular.	By gift of the Publishers.

BRITISH.

Civil Engineer and Architect's Journal.	By subscription.
Practical Mechanic's Journal.	"
Engineer.	"
Mining Journal.	"
Farmer's Magazine.	"
Gardeners' Chronicle.	"
Zoölogist.	"
Ibis.	"
Annals and Magazine of Natural History.	"
Monthly Notices of the Astronomical Society.	"
Mechanics' Magazine.	By gift of Messrs. Silliman & Dana.
British Journal of Photography.	"
Ironmonger.	"
Journal of the Society of Arts.	"
Journal of the Chemical Society.	By subscription.
Chemical News.	"

Title.	CONTINENTAL.	How received.
Cosmos.		By gift of Messrs. Silliman & Dana.
Le Monde.		"
Chemisches Central-Blatt.		By subscription.
Annales de Chimie et de Physique.		"
Zeitschrift für Chemie.		"
Zeitschrift der Oberschlesischen Gesellschaft.		"
Annalen der Landwirthschaft in Preussen.		"
Civilingenieur.		"
Polytechnisches Central-Blatt.		"
Technologiste.		"
Botanische Zeitung.		"
Hedwigia.		"
Zeitschrift für Wissenschaftliche Zoölogie.		"
Journal für Anthropologie.		"
Revue Universelle des Mines.		"
Journal d'Agriculture Pratique.		"
Revue et Magazin de Zoölogie.		"
Annales des Ponts und Chaussées.		"
Moniteur de la Photographie.		By gift of Messrs. Silliman & Dana.
Bulletin de la Société Chimique de Paris.		By subscription.

VI. Astronomical Observatory and Instruments.

[In charge of Professor LYMAN.]

The facilities for astronomical observation have been greatly increased during the year by the establishment, at Sheffield Hall, of an Observatory, furnished with large and valuable instruments. Heretofore, the private Observatory of Professor LYMAN has afforded the only means of practical training. With the instruments, fixed and portable, now at command, the student has all needed facilities for observing the heavenly bodies; and also for practice, whether in the operations of a regular Observatory, or in those of Astronomical Geodesy.

The Observatory occupies the two towers, each sixteen feet square, recently added to the edifice. In one of these is mounted an EQUATORIAL TELESCOPE; in the other, a MERIDIAN CIRCLE, with a SIDEREAL CLOCK; both telescope and circle being the recent gifts of Mr. Sheffield.

The Equatorial Telescope, ordered of Messrs. Alvan Clark & Sons, of Cambridgeport, in November, 1865, was, early in October last, mounted in the revolving turret at the top of the front tower, some eighty feet above the ground, where it commands a good horizon. It is supported by a freestone pier, six feet in height, which stands on a massive floor of masonry arched in from the side walls, just above the tower clock. Though it thus par-

takes of whatever motion the tower itself is subject to, from winds and other causes, no noticeable inconvenience has been experienced, or is anticipated, from this source. The floor of the room, which is of wood, immediately above the stone floor, rests only in the outer walls, and does not touch the pier.

The object-glass has a clear aperture of nine inches, and is nine feet ten inches in focal length. The tube, made of pine handsomely finished, and ten inches in diameter, is at once stiff and light. Seven Huygenian eye-pieces give powers ranging from 40 to 620. All but one of these fit also a diagonal eye-tube containing a prismatic reflector. Another diagonal reflector—the first surface of an acute prism of glass—is used in observing the sun, the greater part of whose light and heat is transmitted, while the image formed by the reflected rays is viewed without inconvenience, with the full aperture of the telescope.

The equatorial mounting is the German, or Fraunhofer's—the declination axis carrying a circle of twelve inches diameter, graduated on silver so as to read by two verniers to 10", and the polar axis carrying an hour circle of nine inches diameter, graduated to minutes of time, and reading by two verniers to five seconds.

Beneath the polar axis, in the curve of the U-shaped iron piece by which that axis is supported, is placed the driving clock. Its going is regulated by a half-second pendulum, and the intermittent motion of the scape wheel is changed into a smooth and equable motion for the telescope by the simple and ingenious device known as "Bond's Spring-Governor."

The performance of the telescope accords with the reputation of its makers. On favorable nights, it shows easily such test objects as δ Cygni, the companion of Sirius, the 6th star in the Trapezium of Orion, and, with more difficulty, γ_2 Andromedæ. The second and third have been seen with the aperture reduced to five inches.

There is used with the telescope a bi-filar position-micrometer, with four eye-pieces, by Dollond.

A very simple observing chair enables the observer to change his position, quickly and easily, to any height required, without leaving his seat.

The revolving turret, resembling in form that of a "Monitor," rests, by a circular rail at its base, on eight grooved iron wheels, nine inches in diameter, the steel journals of which run in boxes of Babbitt's metal. It is turned by a crank, the pinion of which

gears into a rack cast on the circular rail. The opening, three feet in width, extends entirely across, through the roof and sides, from base to base. It is closed by eight hinged shutters, so controlled by rods and levers as to be opened or shut with great facility.

The tower connected with the west wing was erected during the last summer, specially for the reception of the Meridian Circle purchased of the U. S. Government, and formerly used in the East room of the Washington Observatory. This instrument was mounted in September on the massive granite piers, which came with it, and the bases of which are imbedded in the upper part of a shaft of solid masonry, thirty-six feet in height, nine in diameter at the base, and seven at the top. This shaft rises, independently of the building throughout, from a foundation ten feet below the surface of the ground, and is surrounded, at a few inches distance, by a double casing made of tarred felt and matched sheathing boards. It is thus well protected against sudden changes of temperature.

The Meridian Circle has a five-foot telescope, with an object-glass of 3·8 inches aperture, and 58 inches focal length. It has three Ramsden eye-pieces. A diagonal eye-piece in addition has been ordered, for more conveniently observing objects at high altitudes. At the focus is a system of one horizontal, and eleven vertical, spider-lines, together with a micrometer thread movable in declination only. The mean equatorial interval of the vertical threads is $14^{\circ}167$.

The axis, thirty inches in length, terminates in steel pivots two inches in diameter, and to opposite faces of its central cube are bolted the two conical frusta forming the tube of the telescope. This tube is so constructed at the ends that the object-glass and eye-tube are readily interchangeable. On the axis, within the piers, are two circles forty inches in diameter. They are graduated on silver, the one to read by a vernier to single minutes, the other by six micrometer microscopes, to single seconds. Four of the microscopes are mounted at the corners, and two at intermediate points on the opposite sides, of a square alidade frame, which is carried by the axis, and held in position by adjusting screws connected with the pier. Attached also to the alidade is a spirit level. Suitable counterpoises prevent undue pressure of the pivots on the Y's. For finding the nadir point, and the level and

collimation errors, a collimating eye-piece and vessel of mercury are used. There is also a striding level for the axis; an observing couch; and a reversing apparatus traversing the floor on rails between the piers.

This instrument, as originally constructed by Ertel & Sons, of Munich, had a thirty-inch circle at each extremity of the axis, outside of the piers. These were subsequently replaced by the present forty-inch circles on the axis inside of the piers, by Wm. J. Young, of Philadelphia, who made also other minor alterations.

In the first and second volumes of the Washington Observations, this circle, in its original form, is fully described, and illustrated by plates. It has been put in adjustment, but not yet sufficiently used to test its performance.

The circle-room has a meridional opening from side to side, twenty inches in width, with roof-shutters, which are opened or shut by a single motion of a lever. The side shutters are ordinary doors.

A Sidereal Clock, by Appleton, London, the gift of William Hillhouse, Esq., of New Haven, is attached to the west wall.

The room is reached either by a spiral staircase from the ground, as shown in the engravings, or from the roof of the building, across which is a walk connecting the two towers, and guarded by an iron railing.

The observatory possesses also a Pistor & Martins Patent Sextant. The private instruments referred to as used by students in Practical Astronomy are: a superior portable Telescope, by Clark & Sons, of $4\frac{2}{3}$ inches aperture and five feet focal length; a Transit Instrument with three-foot telescope, and twelve-inch circle reading by two verniers to $10''$; a Sidereal Clock and an Eight-day Sidereal Chronometer. The telescope of the transit instrument has an object-glass, by Fitz, of $2\frac{1}{2}$ inches aperture, and a micrometer, so constructed as to be used with equal facility at all angles of position, without danger of disturbing the fixed system of threads. With this micrometer, and the spirit-level attached to the alidade of the circle, this instrument is practically a Zenith Telescope, and is used as such in observations for latitude by Talcott's method. The eye-piece constantly used is a diagonal one giving a power of 200, a power warranted by the excellence of the object-glass. The instrument is mounted on a heavy iron stand, cast in one piece, which is supported by a brick pier, four

feet in height, with its foundation of masonry extending several feet below the surface of the ground.

VII. Apparatus and Collections.

The apparatus and collections of the school have never been fully described, and therefore, in recording the additions of the current year, the Instructors present an extended statement of their means of illustration and experiment, inclusive of some of the private and the general collections.

A.—MINING AND METALLURGICAL MUSEUM.

[In charge of Professor BRUSH.]

The object of this Museum, deposited in Sheffield Hall, is to show the characters and mode of occurrence of all useful minerals, and to illustrate the various methods of preparation and extraction which are employed to render them of service in the industrial arts. It contains:

1. Suites of veinstones from noted mining districts, illustrative of the occurrence of ores and the character of the associated minerals.
2. A systematic collection of ores intended to show, in as complete a manner as possible, the physical characters of the various ores of the useful metals.
3. Such non-metallic minerals as are of economic importance, including salt, gypsum, emery, graphite, barytes, sulphur, cryolite, kaolin, etc.
4. A collection of rocks and building-stones, clays, limes, cements, etc.
5. A collection of the varieties of fossil fuel, including anthracite, bituminous, cannel, and brown coal, lignite, and peat.
6. Collections illustrative of the dressing or mechanical preparation of ores.
7. Specimens illustrative of the more important metallurgical processes employed in this country and in Europe, showing the successive steps by which the several metals are extracted from their native combinations, commencing with the raw ore, and passing through the various intermediary products to the marketable metal.
8. A collection of crystallized slags and furnace products.
9. A large collection of models and diagrams illustrative of mines and smelting works, and of mining and metallurgical apparatus.

The whole numbers several thousand specimens, and through the intelligent liberality of friends of practical science, the number and value of the collections are constantly increasing.

Among the European specimens are a collection of veinstones from the celebrated mining district of Freiberg, in Saxony, with suites of specimens illustrative of the European amalgamation process, the silver and lead smelting process, and the copper and silver extraction process used at the Freiberg metallurgical works. From the silver district of the Hartz mountains are suites illustrative of the metallurgical treatment of the ores of the Rammelsberg mine, and the mines of Andreasberg, Clausthal, and Lautenthal. From England and Wales are collections showing the methods of treatment of iron, copper, lead, and tin ores, the manufacture of tin-plate, etc.

Among the American collections are specimens from most of the important mineral districts in the country, and, as far as possible, suites to illustrate the occurrence of the ores of different metals, with the methods employed for their metallurgical treatment.

The more important recent donations to the Museum are ores from the gold and silver mining districts of California, Nevada, Arizona, and Idaho, received chiefly through Prof. Silliman, J. C. Clayton, Esq., of California, E. S. T. Arnold, Esq., of New York, H. R. Mighles, of Nevada, J. C. Clarke, Esq., of Oregon, and W. D. Walbridge, Esq., of Idaho;—Lake Superior copper and silver from Messrs. T. Henry Mason and Chas. J. Sheffield;—iron ores, from the Lake Champlain district, from Prof. Verrill;—Salisbury iron ores, from Mr. Chas. S. Rodman;—Pennsylvania iron ores, from Mr. J. H. Grove;—Wisconsin lead ores, from Dr. Peter Collier;—Wisconsin zinc ores, from Fred'k Moeller, Esq.; nickel ores, from Joseph Wharton, Esq.;—Nova Scotia and New Brunswick manganese ores, from Messrs. Fearing, Hobbs & Co., of Boston, and Mr. Barnes, C.E., of Halifax;—New Brunswick antimony ores, from Prof. Bailey;—California and Mexican tin ores, from Prof. Silliman. As illustrating metallurgical processes, have been added specimens of steel from the steel works of Messrs. Park Bros., Pittsburgh; from the Collinsville Co.; from Messrs. Winslow, Griswold & Holley's Bessemer steel works at Troy, N. Y.; and from E. Savage, Esq., of Meriden; specimens of iron from the Bethlehem iron works, from the Columbia works, and others;—lead specimens from the Mineral Point works;—specimens showing

Kent's modified Freiberg process for the treatment of gold and silver ores, from E. N. Kent, Esq., of New York; specimens of gold and silver from the *patio* process, from W. H. Hayden, Esq., of Honduras, etc. etc.

MINERAL CABINET.

The private mineral collection of Prof. Brush is also deposited in Sheffield Hall. This cabinet, consisting of some five thousand specimens, has been collected during the past twenty years, for the special purpose of illustrating the characters of the various mineral species and varieties as fully as possible. It is one of the most valuable and complete collections in the country, and is liberally used for the purposes of instruction in Mineralogy.

B.—MINERALOGICAL AND GEOLOGICAL MUSEUM.

[In charge of Professors DANA, BRUSH, and MARSH.]

The College Cabinet, deposited in the Cabinet building, on the college square, is well known as one of the most extensive geological and mineralogical collections in the country. It includes the choice collection of minerals bought of Col. George Gibbs in 1825, for \$20,000, that purchased of Baron Lederer, Austrian Consul in New York, and other important purchases and donations brought together during the last half-century. The fossils number many thousands, from all formations, and are arranged according to their geological succession. The minerals are likewise systematically arranged according to Dana's Mineralogy. The College possesses other important collections in these departments, not yet arranged for exhibition.

A fine collection of about fifty slabs of fossil Footprints from the Connecticut River Sandstone at Turner's Falls, Mass., has recently been purchased for the Museum by the Corporation of Yale College. This collection was made by Mr. T. M. Stoughton, of Gill, Mass., and contains many specimens of great interest. The expense of transporting this large collection from Greenfield to New Haven was generously defrayed by the Conn. River, and New Haven, Hartford, and Springfield Rail Road Companies; and his honor, Mayor Sperry, of New Haven, has kindly allowed a room in the State House to be used for its temporary accommodation.

Mr. Roswell Field's valuable collection of fossil Footprints, also from the Connecticut River Sandstone of Turner's Falls, and two

smaller collections, containing many rare and some unique specimens, from the same locality, have more recently been purchased for the Museum with the first income of the Peabody Fund.

A large collection of fossil Vertebrates from the "Mauvaises Terres," or "Bad Lands," of the Upper Missouri region, collected during the past summer by Dr. F. V. Hayden, has quite recently been secured for the Cabinet, also with the income of the Peabody Fund. This collection contains many rare and valuable specimens, and among them probably the finest suite of fossil Turtles yet discovered in America.

An extensive collection of fossils and rocks from various parts of Europe, and many specimens from American localities, have been given to the Museum by Prof. O. C. Marsh. Donations have also been received during the past year from Mr. John DeLaski, West Falmouth, Me.; Mr. W. J. Beal, Union Springs, N. Y.; N. S. Shaler, Cambridge, Mass.; Mr. H. R. Mighles, Carson City, Nevada; Mrs. T. Clapham; Mr. Austin DeWolf, Greenfield, Mass.; Mr. F. H. Bradley, New Haven; and Mr. H. A. Green, Mt. Morris, N. Y.

Among the donations to the Geological Cabinet, previous to the present year, of which no official public acknowledgment has hitherto been made, the following deserve especial mention:

Richard S. Fellowes, Esq., of New Haven, a graduate of the class of 1832, generously defrayed the expenses of Mr. F. H. Bradley while on a collecting tour through New York State during the summer of 1864. By this donation of five hundred dollars, 16,200 specimens of fossils were added to the Cabinet.

In the following year, George J. Pumpelly, Esq., of Oswego, N. Y., a graduate of the class of 1826, made another donation of the same amount, and thus enabled Mr. Bradley, in company with Dr. P. Collier, and Mr. G. B. Pumpelly, to visit the States farther west, where they collected 10,200 specimens of Palæozoic fossils.

Prof. J. D. Dana also made a liberal contribution to the Cabinet fund in the same year, by means of which 6,850 specimens of fossils, mostly from New York State, were collected by Mr. Bradley. The expense of transporting these extensive collections to New Haven was generously borne by the Adams, American, and United States Express Companies.

Dr. W. A. Clapp, of New Albany, Ind., presented to the Museum in 1864 a valuable collection of 2,500 specimens of fossil Corals, mostly from the Falls of the Ohio.

The Smithsonian Institution in 1865 gave a fine collection of Cretaceous fossils from the United States, and various fossils collected by the Exploring Expedition under Capt. Wilkes.

Prof. B. Silliman presented to the Museum in the same year a very valuable collection of fossils, gold and silver ores, rocks, and furnace products from California. Prof. A. E. Verrill gave a collection of 1,611 specimens of fossils and rocks, chiefly from Nova Scotia, Maine, and New York; Prof. S. W. Johnson, 256 specimens of fossils and rocks from Northern New York; and Prof. G. J. Brush, 72 specimens of fossils, mostly from Western New York. Other individuals connected with the college have also made valuable donations to the Cabinet.

Walter S. Church, Esq., of New York, gave some interesting fossils, and some rare silver and copper ores from the Andes of Peru; T. W. T. Curtis, Esq. of Hartford, Ct., a collection of 420 specimens of fossils from Spergen Hill, Ind.; Dr. Thomas H. Totten, of New Haven, 13 specimens of fossils from Aspinwall; O. W. Corey, Esq., of Ind., 150 specimens of fossils from Crawfordsville, in that State; Messrs. W. W. Borden and D. I. Place, of New Providence, Ind., 400 specimens of fossils; Dr. W. W. Dawson, Cincinnati, Ohio, 100 specimens of fossils from Hillsboro, Ohio. The Cabinet has also been considerably increased of late through additions obtained by purchase and exchange.

In view of the rapid enlargement of this department of the Museum, it is very desirable that the entire collection should be rearranged, and systematically catalogued. This work has already been commenced, under the direction of the Professor of Palæontology, by Mr. W. H. Niles, Mr. W. N. Rice, and Mr. E. T. Nelson, students in this department, and will be continued until completed.

C.—COLLECTIONS IN ZOOLOGY.

[In charge of Professors DANA and VERRILL.]

Within the past two years, special attention has been given by Professor VERRILL to the increase of the College collections in Zoölogy, and to the preparation of the specimens for exhibition in the Peabody Museum, soon to be erected. Large accessions have been received from collectors more or less intimately connected with the School, from exchanges and gifts. Much labor has been bestowed upon the identification and labelling of specimens, and upon the preparation of systematic catalogues, in which

the entries correspond to the numbers affixed to both specimens and labels. Most of the Radiates and Crustaceans, and a large part of the shells, as well as portions of most of the other classes, altogether amounting to about 30,000 specimens, have been thus catalogued during the past year. In this work, Messrs. S. I. Smith, F. W. Stowell, W. S. Williams, and E. T. Nelson, students in the Zoölogical Department of the School, have rendered great assistance.

The regular excursions of the zoölogical classes of the School have added to the collection over 6,500 specimens, embracing nearly every order. A series of these, with other New England specimens, have been arranged, for the present, in the Agricultural lecture-room, for the purpose of illustrating the zoölogical lectures, as well as the geographical distribution of our New England species. A set of Insects injurious to vegetation has also been arranged in the same room.

A system of exchanges with other institutions, both American and foreign, has been established, which has already yielded valuable returns, and from which still more is expected in future.

The most important additions, however, are the collections made by Mr. F. H. Bradley, of the Scientific School, chiefly at Panama, Callao, and other points on the west coast of America. The expenses of this expedition have been paid by subscriptions from Prof. J. D. Dana, Prof. B. Silliman, John Cummings, Jr., Esq., of Boston, Hon. W. W. Boardman, of New Haven, Prof. G. J. Brush, Prof. S. W. Johnson, and C. S. Lynch, Esq., of Boston.

Acknowledgments are also due to David Hoadley, Esq., President of the Panama Railroad Co., and to F. W. G. Bellowes, Esq., Vice-President of the Pacific Mail Steamship Company, to whose liberality we owe the free transportation of these large collections, as well as free passages and other important facilities for Mr. Bradley.

From this source 38 barrels, boxes, and kegs, containing over 100,000 specimens, about one half of them preserved in alcohol, have been received.

The expenses of other collections received during the past year, as well as the general expenses attending their care and preservation (not including salary), have been paid from an appropriation of \$500 from the funds of the Scientific School, and \$150 from the College funds.

During the past two years the number of donations received was 229, including about 141,000 specimens. Three specimens were purchased; and 16 lots, containing 3,000 specimens, were obtained by exchange.

The following summary embraces the collections received during the past year, as well as those received the previous year, not before acknowledged. The number of specimens in some cases can, at present, be given only approximately.

ADDITIONS TO THE ZOOLOGICAL COLLECTIONS.

	Specimens.
PANAMA EXPEDITION—Collected by F. H. Bradley.—Mammals, Birds, Reptiles, Fishes, Insects, and Marine Invertebrata, from Panama and Pearl Islands; Reptiles, Fishes, Corals, Shells, and other Marine Invertebrates, Aspinwall; Fishes, Shells, Crustacea, and Radiates, Callao, Peru; Fishes, Shells and Radiates, San Salvador,	100,000
Prof. J. D. Dana.—Shells from Michigan, collected by F. H. Bradley; Reptiles, Insects, Crustacea, Worms, Corals, and Echinoderms, American and foreign,	835
Chas. Wright (Class of 1835, Y. C.), Wethersfield, Ct.—Land Shells, Cuba; identified by Thos. Bland, Esq.,	1,423
S. I. Smith, Sheffield Scientific School.—Reptiles, Bird's Eggs, Shells, Insects, Norway, Me.; Shells, Insects, etc., New Haven and vicinity,	7,016
Essex Institute, Salem, Mass., in exchange.—Corals, East Indies; Sponges, Echinoderms, Mollusca, etc., American and foreign; Crustacea, Insects, etc., Massachusetts,	266
Smithsonian Institution.—Shells from U. S. Expl. Expedition, W. Indies, California, Mazatlan, Cape St. Lucas, England; Birds' Eggs, many Arctic species; Fishes, Crustacea, Corals, and Echinoderms, American and foreign,	4,200
Prof. D. C. Eaton.—Corals, Echinoderms, and Shells, Florida; Shells, Sandwich Is., etc.; Insects, Europe and America,	1,441
Prof. B. Silliman.—Insects, Shells, etc., California and Colorado; Corals, W. Indies; Echinoderms, Panama; Indian Relics, California; Insects, Connecticut,	753
Prof. G. J. Brush.—Corals and Insects,	4
Prof. O. C. Marsh.—Insects and Mammals,	10
Prof. A. E. Verrill.—Fishes and Marine Invertebrates, Bay of Fundy; Reptiles, Insects, Shells, etc., New England; Foreign Corals and Shells; Shells, Insects, etc., Lake Champlain,	11,124
Prof. W. D. Whitney.—Shells, Africa; Birds, U. States and S. America,	120
Walter S. Church, Esq., New York.—Bird-skins, Peru,	9
F. H. Bradley (S. S. S.).—Birds, Reptiles, Insects, Shells, Connecticut and Virginia; Radiates and Mollusca, Long I. Sound,	727
Boston Society of Natural History, in exchange.—Echinoderms and Corals, American and foreign,	243
Rev. E. C. Bolles, Portland, Me.—Land and fresh-water Shells, Maine,	220
O. N. Brooks, Esq., Faulkner's Island.—Eggs of the Roseate Tern,	50
Chicago Academy of Natural Sciences, in exchange.—Bird-skins and Eggs, U. States and Arctic America,	218
Mrs. Martha Cook, Cambridge, Mass.—Insects from Cambridge and New York,	4
Peter Collier, Ph.D. (1866, S. S. S.).—Insects, New Haven,	46
A. Daggett, Jr., New Haven.—Insects, New Haven; Shells, etc., foreign, Insects and Crustaceans, Africa (deposited),	53
W. W. Denslow, Esq., New York.—Insects, Reptiles, Shells, etc., New York,	8
H. M. Dudley (S. S. School).—Insects, Reptiles, Shells, etc., Connecticut and N. Y.; Fish, Mass.,	25
In exchange.—Insects, Massachusetts,	80
	75

	Specimens.
<i>Mrs. Wooster Hotchkiss</i> , New Haven.—Shells and Echinoderms, E. Indies and China,	666
<i>Dr. Thos. H. Totten</i> (Class of 1834), New Haven.—Corals, Sponges, Shells and Echinoderms, Aspinwall,	677
<i>Mrs. Dr. W. Parker</i> , New York.—Insects, etc., from S. Africa (deposited),	14
Reptile, S. Africa; Insects, Upper India (donated),	15
<i>W. S. Brewer</i> .—Egg of Peacock,	1
<i>Wm. Stone</i> (Class of 1865).—Reptiles, Insects, etc., New Haven; Insects and Reptiles, Croton Falls, N. Y.,	30
<i>George J. Pumpelly, Esq.</i> , Oswego, N. Y. (Class of 1826).—Reptiles, Insects, Shells, etc., Indiana, Ill., and N. Y., collected by F. H. Bradley,	716
<i>Wm. C. Minor, M. D.</i> , New Haven.—Insects, Shells, etc., Ceylon; Corals and Shells, Florida; Reptiles, Shells, etc., New Haven,	912
Skulls and Skeletons, Mammals, Birds, Fishes (deposited),	20
<i>Alex. U. McAllister</i> (Class of 1866, S. S. S.).—Insects, New Haven,	2
<i>Prof. W. H. Brewer</i> .—Shells from Germany; do. from Mississippi River; Reptiles, New York; Insects, New Haven,	139
<i>Prof. A. E. Verrill and S. I. Smith</i> .—Insects, Shells, Fishes, Crustacea, etc., Connecticut,	618
<i>S. I. Smith and S. S. Ferry</i> (S. S. S.).—Crustacea, Worms, Insects, Fishes, Connecticut,	45
<i>Prof. A. E. Verrill and Zoölogical Class</i> (Class 1866, S. S. S.).—From Zoölogical Excursions, Mammals, Birds, Reptiles, Fishes, Insects, and Marine Invertebrates,	2,079
<i>Do.</i> (Classes 1867 and '68, S. S. S.).—From Zoölogical Excursions, land and marine,	4,657
<i>Prof. S. W. Johnson</i> .—Insects from Grape-Vine; Potato Beetle, Iowa; Insects from Lewis Co., N. Y.,	44
<i>E. Suffert, Esq.</i> , Cuba, in exchange.—Insects from Cuba,	128
<i>Amos Shepherd, Esq.</i> , Plantsville.—Insects, Reptiles, etc., Bristol and Plantsville, Ct.,	249
<i>L. Trouvelot, Esq.</i> , East Medford, Mass.—American and foreign Silk-worms and Silk, etc.,	10
<i>T. G. Sanborn, Esq.</i> , Boston, Mass.—Insects,	31
<i>A. S. Packard, Jr., M.D.</i> , Salem, Mass.—Insects from Maine and Mass.; Crustacea and Radiates from Maine,	27
Invertebrates from Labrador, (in exchange),	800
<i>E. S. Morse, Esq.</i> , Salem, Mass.—Insects from Maine; Corals, foreign,	5
<i>M. N. Chamberlain</i> (Class of 1857).—Starfish, West Indies,	1
<i>H. W. Green, Esq.</i> , Mt. Morris, N. Y.—Shells,	31
<i>S. L. Chittenden</i> (S. S. S.).—Living Puffing Adder, New Haven, Ct.,	1
<i>C. A. DeKay</i> (Class of 1868).—Insects from Germany,	178
<i>George F. Barker, M.D.</i> (Class of 1858, S. S. S.).—Centipedes, West Indies,	8
<i>W. A. Copp</i> (Class of 1869).—Fish, New Haven,	1
<i>Geo. W. Peck</i> , New York.—In exchange, Insects, U. States,	20
<i>Horace Mann</i> , Cambridge, Mass.—Echinoderms and Corals, Pacific Ocean,	44
<i>C. R. Dodge</i> (S. S. S.).—Shells and Insects, Washington, D. C.; Crustacea, Insects, Shells, Connecticut,	505
<i>Forrest Shepherd, Esq.</i> (Class of 1827), New Haven.—Fish and Shell, New-foundland; Insects' eggs, Texas,	29
<i>Prof. A. Van Name</i> .—Insects, New Haven,	5
<i>Prof. H. A. Newton</i> .—Insects, New Haven,	2
<i>J. W. Gibbs, Esq.</i> (Class of 1858).—Insects, New Haven,	6
<i>Prof. H. A. Newton and J. W. Gibbs</i> .—Insects, New Haven,	10
<i>C. W. Chase</i> , North Adams, Mass.—Insect,	1
<i>Jno. Spence, Esq.</i> , Milford, Ellis Co., Texas.—Living "Horned Toad," Texas,	1
<i>Miss Ellen D. Eaton</i> , New Haven.—Rare Insect,	1

	Specimens.
<i>Richard E. Smyth</i> (Class of 1866), Guilford.—Insects from Guilford, Ct., and Iowa,	58
<i>John H. Grove</i> (S. S. S.).—Insects, New Haven,	9
<i>W. H. Niles</i> (S. S. S.).—Insect, New Haven,	1
<i>W. N. Rice</i> (S. S. S.).—Bat and Insect, New Haven,	2
<i>D. H. Wells</i> (S. S. S.).—Insects, Long Island,	2
<i>E. T. Nelson</i> (S. S. S.).—Shells and Echinoderms, Long Island Sound, and Chelsea, Mass.,	164
<i>F. W. Stowell</i> (S. S. S.).—Echinoderms, California; Shells, Worms, Crustacea, Echinoderms, Long Island Sound,	204
<i>H. S. Williams</i> (S. S. S.).—Shells, etc., New Haven; do., Ithaca, N. Y.,	85
<i>H. S. Manning</i> (S. S. S. 1861.).—Corals from Tortugas, Florida,	28
<i>W. J. Beals, Esq.</i> , Union Springs, N. Y.—Shells and Crustacea, Michigan and N. Y.,	609
<i>J. H. Sternbergh, Esq.</i> , Panama.—Mammals, Reptiles, Insects (with nests), Chiriqui Pottery, etc., Panama and vicinity,	194
<i>Miss Kate Sternbergh</i> , Panama.—Insects and Scorpions,	26
<i>Wm. H. Sternbergh</i> , Panama.—Insects,	5
<i>Don Pedro Brocale</i> , San Miguel.—Insects from Pearl Islands,	4
<i>Dr. Marsh</i> , U. S. N.—Large Locust, Panama,	1
<i>Henry Edwards, Esq.</i> —Starfishes, Crustacea, Shells, Hydroids, Sponges, etc., New Zealand; Sponges, Shells, Hydroids, New South Wales,	361
<i>Museum of Comparative Zoölogy</i> .—In exchange, Echinoderms, Acapulco, Mexico,	4
<i>C. Cowles, Esq.</i> , New Haven.—Squilla, Long I. Sound,	1
<i>Prof. A. E. Verrill</i> .—Corals, E. Indies; Echini, miscellaneous, from Essex Institute; Corals, types of new species, Pacific Ocean (deposited),	205
<i>F. W. Fellowes, Esq.</i> (Class of 1853), New Haven.—Oysters from France,	2
<i>Mrs. H. R. Mighels</i> , Carson City, Nevada.—Shells from Nevada,	22
<i>J. H. Slack, M.D.</i> , Philadelphia.—Casts of head and skull of Gorilla castaneiceps Slack; and skull of Charopsis Libertiensis Leidy,	3
<i>Purchased</i> .—Of J. G. Rich, Upton, Me., a Caribou, mounted; of F. W. Putnam, a Bird of Paradise, mounted; of a sailor, jaw of Shark, W. Indies,	3

SPECIMENS SENT AWAY IN EXCHANGE.

The following collections, numbering 2212 labelled specimens, have been sent out during the past year. Several other similar collections are nearly ready for sending.

<i>Prof. C. E. Hamlin</i> , Waterville, Me.—Shells from Long Island Sound,	159
<i>Dr. A. S. Packard</i> , Salem, Mass.—Crustacea, Echinoderms, and Shells, Long Island Sound,	40
<i>Essex Institute</i> , Salem, Mass.—Insects from Connecticut and Maine,	83
Minerals, various localities,	59
Echinoderms, New England; Corals and Echinoderms, Panama and Aspinwall,	54
Crustacea, Worms, and Mollusca, Long Island Sound,	314
<i>Prof. S. Tenney</i> , Vassar Female College, Poughkeepsie, N. Y.—Insects, New England,	500
Marine Invertebrata, New England and Labrador,	699
<i>C. F. Hartt</i> , New York.—Corals and Echinoderms, New England and foreign,	91
<i>Boston Society of Natural History</i> .—Echinoderms, Eastport, Me.,	10
Corals and Echinoderms, Panama, etc.,	45
<i>Museum of Comparative Zoölogy</i> .—Echinoderms, Eastport, Me., and Panama,	8
<i>E. Suffert, Esq.</i> , Cuba.—Insects of New England,	150

COLLECTION OF NATIVE BIRDS.

A beautiful collection of Native Birds has been placed in Sheffield Hall by Professor Whitney, who collected and arranged them. The glass case in which they are exhibited now stands in the second story of the East wing, at the head of the staircase leading to the Metallurgical Museum. This collection, numbering 152 specimens, includes examples of nearly all the birds which are ordinarily met with in Connecticut. Being neatly mounted and catalogued, they furnish to the students an excellent illustration of the local ornithology.

D.—COLLECTIONS IN BOTANY.

Professor EATON's private library and herbarium are the principal accessories to the study of Botany, which are available for students. The herbarium contains the greater part of the known plants of the United States, and has been enriched with large collections from England, Germany, Norway, Japan, Australia, the Pacific Islands, Cuba, etc., so that it contains not less than eight or ten thousand species. The collection is well mounted and arranged according to the most improved methods, and it is increasing by large accessions every year.

Prof. BREWER's herbarium, which is kept in Sheffield Hall, is also accessible to students in Botany.

The Flora of the region about New Haven is rich and varied, and includes maritime as well as inland species in great abundance.

E.—AGRICULTURAL MUSEUM.

[In charge of Professors BREWER and JOHNSON.]

The Agricultural Lecture-room, recently completed, is furnished with commodious cases for specimens to illustrate Agricultural instruction. The space is not sufficient for the reception of bulky implements and machines, but is otherwise adequate to the present requirements of the School.

There is already in this collection a series of authentic guanos, superphosphates, and other commercial fertilizers, numbering 220 specimens, of which about 100 have been accurately analyzed by or under direction of Prof. Johnson; a series of peats and swamp mucks, 30 in number, also analyzed under direction of Prof. Johnson, in his capacity of Chemist to the State Agricul-

tural Society; 40 samples of soils, 180 specimens of minerals, and rocks illustrative of the origin of soils, etc. etc.

In addition, Prof. Verrill and Mr. S. I. Smith have arranged 5,000 specimens of insects injurious and useful in Agriculture.

The School is indebted to the following persons for important contributions:

John T. Andrew, Esq., West Cornwall, Conn., samples of Leicester and Cotswold Wool.

Prof. Chandler and A. A. Julien, of Columbia Coll., a suite of the rock guanos of Sombrero Island.

Prof. J. D. Hague, of the Mass. Institute of Technology, a suite of 40 specimens of Guano from Baker's, Jarvis, and other islands in the Pacific.

Prof. C. U. Shepard, of Amherst College, twelve samples of Carolina cotton and sugar soils, marl, &c.

G. N. Cleveland, of Mass., ten samples of green sand marl from New Jersey.

S. L. Goodale, Sec'y of the Maine Board of Agriculture, three samples of ground bone, four of superphosphate of lime, and six specimens of Borden's extract of beef.

T. S. Gold, Esq., Sec'y of the Conn. Board of Agriculture, six samples of South Down wool.

Samuel Fowler, Esq., of Westfield, Mass., 6 samples of Georgia cotton soils.

Dr. R. A. Fisher, of Grass Valley, Cal., box of specimens illustrating Dr. Von Welsbach's preparation of fibre, cloth, and paper made from the husks of Indian corn at the Imperial Austrian paper manufactory, near Vienna, and sample of many-headed wheat from Pike's Peak, Colorado.

Clarence King, Ph.B., late of the Geological Survey of Cal., specimen of Pine Sugar from the Sierra Nevada of Cal.

Messrs. F. F. Thomas and G. W. Mixter of the Scientific School, specimens of soils, 3 samples from Tioga Co., N. Y., and 2 from Rock Island, Ill.

Prof. B. Silliman, 7 samples of alkali soils from Nevada.

Rowland Hazard, Esq., Peacedale, R. I., specimens of dyed wool.

It is desirable to increase these collections, and friends of the School will confer a great favor by sending specimens of soils of remarkable or characteristic quality (in quantities of 4 quarts); of guano or other natural fertilizers and of new artificial fertilizers (in quantities of 2 quarts); seeds of useful plants, especially of new or rare varieties; textile fabrics, and vegetable products generally that admit of preservation; portraits and small models of thoroughbred animals; specimens of wool and animal fibres; small models of implements and machines; models or figures of fruits, roots, and perishable products. Parties willing to contribute to the Agricultural Museum will receive lists of desiderata and other information they may require, on application to Prof. Brewer.

F.—ENGINEERING MODELS, INSTRUMENTS, AND APPARATUS.

[In charge of Professors NORTON and LYMAN.]

The Department of Engineering is provided, by the liberality of Joseph E. Sheffield, Esq., with a large collection of geometrical, architectural, topographical, and constructional models. The collection comprises a large number of models in plaster, made by M. Bardin, formerly Professor in the Polytechnic School in Paris, and sets of models in wood, made by Schröder in Darmstadt, and a considerable number contrived for special purposes of instruction, and made in New Haven.

The Department is also furnished with a full set of instruments for surveying and field engineering—compass, theodolite, level, transit, &c.—and with a suite of apparatus contrived by the Professor of Engineering for the purpose of testing the theoretical laws of the strength and stiffness of materials.

The following is a brief statement of the different sets of models in the collection :

I. Models in Plaster.

1. Geometrical Solids—including solids of revolution, helicoidal bodies, twisted rings, torus's, &c.
2. Poinso't's Regular Polyhedrons, with their derived forms.
3. Complete set of models, in illustration of the intersections of surfaces.
4. Set of models of arches, and their separate stones—oblique, groined, cloistèred, terminated by curved surfaces, &c.
5. Spiral staircases.
6. Screws of different forms.
7. Models of bridges, with approaches and wing-walls.
8. Models of oblique bridges.
9. Models of niches.
10. Models of the Orders of Architecture ; also, of twisted columns, and certain architectural details.
11. Two models of Capitals of Columns—new forms, designed and presented by Prof. Louis Bail.
12. Set of Topographical models, showing contour lines, shading, tinting, &c., with accompanying topographical drawings ; and including a large model of the Pass of Mt. Cenis, showing contour lines, &c.

II. Models in Wood, Iron, or Brass.

13. Set of models in illustration of problems in Descriptive Geometry.
14. Set of Models of Joints.
15. Models of Warped Surfaces. A considerable number of these are in imitation of the Olivier Models, India-rubber threads being substituted for silk threads stretched by weights.
16. Large model of a Roof Truss of great span.
17. Model of McCallum's Arched Truss Bridge.
18. Models in Wood and Metal, illustrating the principles of mechanism.

III. *Working Models of Engines.*

Two highly finished models of Steam Engines—the one marine, the other oscillating (a working model)—both presented by T. S. Rowland, Esq., of the Continental Works, Greenpoint, L. I.

A fine working model of an Oscillating Engine, with boiler—presented by Wm. W. Woolsey, Esq., of New Haven.

A large sectional model of a Stationary Condensing Engine and Boiler, showing the arrangement and motion of the parts—brought to this country by Dr. Lardner, and used in his lectures.

G.—MAPS, CHARTS, AND TOPOGRAPHICAL MODELS.

[In charge of Professors NORTON and GILMAN.]

For illustrating the lectures in Physical Geography, and the other studies of the School, the beginning has been made of a collection of maps, charts, reliefs, and topographical models. As the scope of the School is extended, every thing which illustrates the physical structure of the globe, especially all maps, whether general or special, exhibiting the results of scientific surveys, will be found of use, not only in the instruction of classes, but for consultation and reference among scientific men. All such contributions to the resources of the School will be carefully preserved and exhibited.

For immediate service in the class-room, the below-mentioned means of illustration are now employed.

Guyot's Wall Maps, large series, illustrating the physical structure of the Earth and of the several continents.

Sydow's Wand-Atlas über alle Theile der Erde.

Ewald's Orographische Wand-Karte.

Berghaus and Stülpnagel's Wall Map of the Earth.

Bretschneider's Historische Wand-Karten von Europa.

General Atlases of Kiepert, Stieler, Berghaus, Sydow, etc.

Terrestrial and Celestial globes (16 inches).

Topographical model of the pass of Mt. Cenis.

Model of Mt. Blanc and its environs, by Kummer, 21×17 in. (from Ritter's library).

Relief-map of Switzerland, by Bauerkeller.

Relief-map of Palestine, by von Erbe. (13½×15½ inches.)

Relief-plan of Jerusalem, by Altmüller. (8×10½ inches.)

Van der Welde's new Wall Map of Palestine.

Series of Relief-plans of the environs of Metz, and a corresponding series of topographical maps illustrative of the different modes of representation and delineation.

Series of Relief-plans and Maps (similar to those just mentioned), representing the Isle de Porquerolles.

VII.—Public Lectures to Farmers.

The officers of the school refer with pleasure to their relations with the Connecticut State Board of Agriculture, organized by the General Assembly in the May session of 1866. By invitation of the faculty, the annual meetings of the Agricultural Board and of the State Agricultural Society were held in the large lecture-room of Sheffield Hall, on the 8th, 9th, and 10th of January, the lectures and discussions occupying both evening and day-time. By request of the Board, three public lectures were given by Prof. Brewer, one on "Irrigation in California," and two on "Diseases of Plants caused by Fungi." Prof. Johnson also gave a lecture on "Recent Investigations concerning the source and supply of Nitrogen to Plants," and a second on "The Principles which may guide the Farmer in the selection and use of Fertilizers."

Messrs. Brewer and Johnson having previously signified their willingness to devote some time to giving lectures on agricultural topics in different parts of the State, the Board of Agriculture, at their January meeting, accepted the offer, and directed that arrangements should be made for employing Prof. Brewer to lecture under their auspices during two weeks in the month of March. His services were to be gratuitously rendered, and the lectures were to be free; but the expenses of travel were to be borne by the Agricultural Board. In accordance with this arrangement, the appointments were made for Prof. Brewer in the following places:—Norwich, Central Village, Brooklyn, Stafford, Rockville, Hartford, Bristol, Norwalk, New Milford, and Falls Village.

VIII.—Public Lectures to Mechanics.

In continuance of the plan commenced last year, a series of evening lectures to Mechanics is now in progress in the large Lecture room of Sheffield Hall.

The object of this course is to gratify the interest of practical Mechanics, and others, in the discussion of scientific topics, and to diffuse a knowledge of scientific facts and principles.

The lectures are given on Monday and Thursday evenings, at a charge of one dollar for the course.

The Hall has been well filled by an intelligent and appreciative audience. The following is the programme:

I.	Jan.	28.	General considerations relating to Heat,	- - - - -	Prof. BARKER.
II.	"	31.	Dynamic Theory of Heat,	- " "	" "
III.	Feb.	4.	Effects of Heat,	- - - - -	" "
IV.	"	7.	Meteorological Effects of Heat,	- - - - -	Prof. BREWER.
V.	"	11.	Warming and Ventilation,	- " "	" "
VI.	"	14.	Fuel,	- - - - -	Prof. JOHNSON.
VII.	"	18.	"	- - - - -	" "
VIII.	"	21.	Mechanical Relations of Heat,	- - - - -	Prof. LYMAN.
IX.	"	25.	"	" " " "	" "
X.	"	28.	Coal and Coal Mining,	- - - - -	Prof. ROCKWELL.
XI.	March	4.	" " " "	- - - - -	" "
XII.	"	7.	Copper,	- - - - -	Prof. BRUSH.
XIII.	"	11.	Zinc,	- - - - -	" "
XIV.	"	14.	Physical Geography of N. America,	- - - - -	Prof. GILMAN.
XV.	"	18.	" " " the U. States,	- - - - -	" "
XVI.	"	21.	Tides of the Atlantic Coast,	- - - - -	Prof. NORTON.
XVII.	"	25.	Magnetism and the Magnetic Needle,	- - - - -	" "
XVIII.	"	28.	Grecian Architecture,	- - - - -	Prof. BAIL.

IX. State Students.

The usual advertisements have been inserted in the newspapers of the State during the past year, announcing that a certain number of vacancies in the free scholarships of the School were open to applicants, preference being given to the sons of those who have fallen in the national army or navy, and, next to them, to young men in need of pecuniary assistance. Notwithstanding this publicity, the vacancies have not all been filled. The officers of the School believe that if the teachers in the various towns of the State should call attention to this opportunity for free scientific education, it might be of service to individual young men and to the State at large. It would be no pecuniary advantage to the School to have these scholarships filled; but we believe that the community would be greatly benefited by the education of more scholars in the various departments of scientific training.

Through a wise provision of the Legislature, the School is brought into advantageous relations with the State Board of Education, the Secretary of that body, like the former Superintendent of Common Schools, being an *ex officio* member of the Board of Visitors and of the Appointing Board. Rev. Birdsey G. Northrop,

the new incumbent of this office, early made himself acquainted with the scope of the School, and has expressed the intention of making known, as he moves about the State on his official tours, the opportunities which are here open for the scientific and practical education of young men. In this connection it may be proper to add, that the Faculty of the School stand ready at all times to show their interest in the promotion of the public school interests of the State. Professors Whitney, Brewer, and Gilman have delivered lectures at the Normal School within the year, and some of the Professors are under engagement to take part in the Teachers' Institutes.

X. Death of Professor John A. Porter.

Prof. JOHN A. PORTER, who was actively concerned in the administration of the School during a period of twelve years, died at his residence in New Haven, August 25, 1866. Although his official connection with this institution had been terminated in 1864 at his own request, in consequence of prolonged illness, his recent associates and colleagues desire in these pages to renew the testimony which was given last year respecting the unwavering interest which he maintained so long in this department of Yale College. A brief outline of his life may also be deemed appropriate.

John Addison Porter, son of Addison Porter, was born at Catskill, N. Y., March 15, 1822. During early life, his paternal home was Philadelphia. He graduated at Yale College in 1842, and continued his studies at home and in New Haven, until 1844, when he went to Newark, Del., to be connected with Delaware College, first as Tutor and then as Professor of Rhetoric. After remaining there three years, he went to Germany and studied Chemistry at Giessen under Dr. Justus Liebig. Returning in 1850, he soon became connected with Brown University, as Professor of Chemistry applied to the Arts. In 1852, he was invited to Yale College to succeed Prof John P. Norton as Professor of Analytical and Agricultural Chemistry, and he remained connected with the Scientific Department of this College (although his title and duties were altered as the institution became enlarged) until physical infirmities disabled him. He then went to Europe in the hope of improving his health—but his efforts were in vain, and after protracted sufferings, borne with Christian fortitude and submission, his life was ended at the age of forty-four.

Deeply interested in all departments of philosophical inquiry, possessed of a mind of unusual vigor, varied in his tastes and acquisitions, cultivated in the management of his pen and voice, he was for several years the principal exponent of the School before the public; and with marked enthusiasm and energy he devoted himself to the enlargement of the institution and its more thorough adaptation to the wants of the community. He also took a deep interest in political discussions, and was earnest in his efforts for the promotion of loyalty and charity during the recent war.

His published writings are but few in number, the chief of them being two elementary text-books on Chemistry, a pamphlet on Agricultural Schools, and occasional contributions to the periodicals of the day.

XI. Instructors and Studies.

The corps of instructors has been enlarged by the appointment of OTHNIEL C. MARSH, Esq., a graduate of Yale College in 1860, to be Professor of Palæontology. Mr. Marsh was a scholar in this department from 1860 to 1862, and during the three years following resided abroad, chiefly at Berlin and Heidelberg, engaged in scientific studies. Since his return the instruction in geology has devolved on him, and the remainder of his time has been occupied in increasing the College collections in geology and palæontology.

Prof. Eaton, who was in Europe at the time of the last report, has returned home and resumed his instruction in Botany.

In accordance with the prospectus made public a year ago, the Mining and Metallurgical section has been organized as a distinct department of the School, and a class is now pursuing the special studies of this course under the instructions of Professors Brush and Rockwell.

Greater attention than heretofore has been bestowed upon the study of the English Language, though the time at command affords but limited opportunity for rhetorical criticism and practice.

The instructors are seriously considering whether a four years' course of study will not be more satisfactory than a three years' course.

The present arrangements may be gathered from the appended circular.

At the Commencement exercises of Yale College in 1866, five scholars of this department, having passed successfully the required examinations, were admitted by the President and Fellows to the degree of Bachelor of Philosophy, one to the degree of Arts, two to the degree of Civil Engineer, and one to the degree of Doctor of Philosophy. The graduating theses of these gentlemen, and the Berzelius and Silliman Prize Essays, were read before the President and Professors, and the friends of the graduating class, on Monday evening, July 23.

Instruction in Military Science has been given during the year, according to the requirements of the act of Congress, by Gen. A. VON STEINWEHR, an experienced Prussian officer, lately commanding a division of U. S. Volunteers.

The number of scholars in attendance during the academic year beginning September, 1866, has been 123,—of whom 14 have been Seniors, 32 Juniors, and 38 Freshmen, and the remainder have been students of partial or higher courses.

In conclusion, the Governing Board call the attention of the Visitors to the harmony subsisting between this institution and all the other organizations with which it is associated in the College and in the State. Friendly relations have likewise been maintained with the officers of other Schools of Science established in different portions of the country as a consequence of the national grant.

The friends of this department, both near and distant, are freely invited to become familiar with its practical work, and are assured that any contributions they can bestow upon its library, apparatus and collections, or its special and general funds, will be carefully directed to the advancement of the objects we have in view.

OFFICERS.

President,

REV. THEODORE D. WOOLSEY, D.D., LL.D.

Professors,

WILLIAM A. NORTON, M.A.,	<i>Civil Engineering and Mathematics.</i>
JAMES D. DANA, LL.D.,	<i>Geology and Mineralogy.</i>
BENJAMIN SILLIMAN, M.D.,	<i>General Chemistry.</i>
REV. CHESTER S. LYMAN, M.A.,	<i>Industrial Mechanics and Physics.</i>
WILLIAM D. WHITNEY, PH.D.,	<i>Modern Languages.</i>
GEORGE J. BRUSH, M.A.,	<i>Mineralogy and Metallurgy.</i>
DANIEL C. GILMAN, M.A.,	<i>Physical Geography.</i>
SAMUEL W. JOHNSON, M.A.,	<i>Analytical and Agricultural Chemistry.</i>
WILLIAM H. BREWER, M.A.,	<i>Agriculture.</i>
ALFRED P. ROCKWELL, M.A.,	<i>Mining.</i>
DANIEL C. EATON, M.A.,	<i>Botany.</i>
OTHNIEL C. MARSH, M.A.,	<i>Paleontology.</i>
ADDISON E. VERRILL, B.S.,	<i>Zoology.</i>

Instructors,

MARK BAILEY, M.A.,	<i>Elocution.</i>
LOUIS BAIL,	<i>Drawing and Designing.</i>
JOHN AVERY, M.A.,	<i>Physics, etc.</i>
JAMES B. STONE, C.E.,	<i>Mathematics.</i>
BEVERLY S. BURTON, PH.B.,	<i>Chemistry.</i>
CHARLES J. SHEFFIELD,	<i>Assaying.</i>

STUDENTS.

SENIORS.

Volney Giles Barbour,	<i>Bristol.</i>
John Kennedy Beeson,	<i>Uniontown, Pa.</i>
Alfred Caldwell,	<i>Wheeling, West Va.</i>
Samuel Hosmer Chittenden,	<i>Madison.</i>
Lyman Stewart Ferry,	<i>New Haven.</i>
Peter H Grove,	<i>Danville, Pa.</i>
Robert Michael Grove,	<i>Danville, Pa.</i>
Charles Henry Hubbard,	<i>Sandusky, O.</i>
William Gilbert Mixter,	<i>Rock Island, Ill.</i>
William Harmon Niles,	<i>Cambridge, Mass.</i>
Sidney Irving Smith,	<i>Norway, Me.</i>
Daniel Halsey Wells,	<i>Upper Aquebogue, N. Y.</i>
Joseph Thompson Whittelsey,	<i>New Haven.</i>
Luther Hodges Wood,	<i>West Haven.</i>

JUNIORS.

Wellington Miles Andrew,	<i>Orange.</i>
Leonard Strong Austin,	<i>Stratford.</i>
George Franklin Bailey,	<i>Rutland, Vt.</i>
Henry Norris Baker,	<i>Brooklyn, N. Y.</i>
Samuel Atkins Barbour,	<i>Bristol.</i>
Frederick Converse Beach,	<i>Stratford.</i>
James deTrafford Blackstone,	<i>Norwich.</i>
James Wood Chapman,	<i>Warsaw, N. Y.</i>
Albert Gardner Clark,	<i>Cincinnati, O.</i>
Henry Marchant Dudley,	<i>Whitinsville, Mass.</i>
Barton Darlington Evans,	<i>West Chester, Pa.</i>
Edward Forsyth Finney,	<i>St. Louis, Mo.</i>
James Fowler,	<i>Westfield, Mass.</i>
Joshua Comly Grove,	<i>Danville, Pa.</i>
Frank Morton Guthrie,	<i>Cincinnati, O.</i>
George Wesson Hawes,	<i>Worcester, Mass.</i>
John Corey Hersey,	<i>Bridgeport.</i>
Joseph Courten Hornblower,	<i>Paterson, N. J.</i>
George Anson Jackson,	<i>North Adams, Mass.</i>
Joseph Scott McKell,	<i>Chillicothe, O.</i>
Charles Kinney Needham,	<i>Louisville, Ky.</i>
Frederick George Noonan,	<i>Milwaukee, Wis.</i>
George Fowler Parmelee,	<i>New Haven.</i>
Lyman Bradley Parshall,	<i>Farmer Village, N. Y.</i>
William Wallace Redfield,	<i>Philadelphia, Pa.</i>
Alexander Renick,	<i>Chillicothe, O.</i>
Joseph Perkins Rockwell,	<i>Norwich.</i>
Lewis Bridge Stone,	<i>New York City.</i>
Samuel Swift,	<i>Brooklyn, N. Y.</i>
Charles Emory Tainter,	<i>Worcester, Mass.</i>
William Robert White,	<i>Philadelphia, Pa.</i>
Henry Shaler Williams,	<i>Ithaca, N. Y.</i>

FRESHMEN.

William Greene Abbot,	<i>Norwich.</i>
William Richardson Belknap,	<i>Louisville, Ky.</i>
Thomas Gray Bennett,	<i>New Haven.</i>
Roman Augustus Bissell,	<i>Detroit, Mich.</i>
Charles Augustus Brinley,	<i>Hartford.</i>
Eugene Stuart Bristol,	<i>New Haven.</i>
Francis Dudley Buck,	<i>New York.</i>
Charles Campbell,	<i>Millburn, N. J.</i>

Andrew Dwight Chidsey,
 Clarence Marcellus Clarke,
 Thomas Fassitt Collier, B.A. }
 Wash'n Univ., St. Louis.
 Alfred Ronald Conkling,
 Frederick Smillie Curtis,
 Charles Arthur Doten,
 Augustus Jay DuBois,
 Joseph Robinson Folsom,
 Arthur De Wint Foote,
 Julian Griggs,
 David Hanford,
 Albert Banks Hill,
 William Rufus Hopson,
 Edward Whiting Johnson,
 Joseph Goodhue Kendall,
 Charles Byron Koon,
 Augustus Washington Littleton,
 Houston Lowe,
 Wallace Ellingwood Mather,
 Henry Hoyt Perry,
 Charles Henrique Pope,
 Walter Charles Riotte,
 Joseph John Skinner,
 Jay Wilson Smith,
 George Frederic Stone,
 Henry Herbert Swinburne,
 Robert Schuyler Van Rensselaer,
 Charles Alvah Weed,
 Horace Franklin Whitman,
 Willard Wendell Wight,
 Frederick Everett Willetts,

New Haven.
Fair Haven.
St. Louis, Mo.
New York City.
Stratford.
Bridgeport.
New Haven.
Fair Haven.
Guilford.
Chaplin.
Middletown, N. Y.
Redding.
Bridgeport.
Norwich.
Cleveland, O.
Auburn, N. Y.
Peoria, Ill.
Dayton, O.
Andover, Mass.
Southport.
Louisville, Ky.
San José, Costa Rica.
Wallingford.
Lodi, Ill.
Hartford.
Newport, R. I.
Bordentown, N. J.
Binghamton, N. Y.
Philadelphia, Pa.
Natick, Mass.
Glen Cove, L. I.

SPECIAL STUDENTS

PURSUING A HIGHER OR A PARTIAL COURSE.

John Thornton Baldwin,
 Frank Howe Bradley, B.A.
 Stephen Henry Bronson,
 Beverly Scott Burton, PH.B.
 Nathaniel Burwash, B.A.
 Peter Collier, PH.D.
 William Cook, B.A.
 John Morrison Davis,

St. Louis, Mo.
New Haven.
New Haven.
Philadelphia, Pa.
Prof. Nat. Sci. Victoria Coll. C. W.
Chittenango, N. Y.
New York City.
Allegheny City, Pa.

Charles Richards Dodge,	<i>Washington, D. C.</i>
William Franklin Dow,	<i>Detroit, Mich.</i>
John H Grove,	<i>Danville, N. Y.</i>
Charles Frederick Hartt, B.A. } Acadia Coll.	<i>St. John, N. B.</i>
Franklin Allen Hinds,	<i>Watertown, N. Y.</i>
William Knox,	<i>Philadelphia, Pa.</i>
Lewis Reed Lampport, PH.B. } Univ. N. Y. City.	<i>New York City.</i>
George Richards Lyman,	<i>New Haven.</i>
Thomas Henry Mason,	<i>New York City.</i>
John James Matthias, PH.B.	<i>Newark, N. J.</i>
Edmund Hiram McIntyre,	<i>Middlesex, Vt.</i>
Frank Lawrence Miles,	<i>Elkhorn, Ind.</i>
Alexander Möller,	<i>Mineral Point, Wis.</i>
Wallace Mott,	<i>Roslyn, L. I.</i>
Edward Thomson Nelson, B.A. } Ohio Wesl. Univ.	<i>Gallion, O.</i>
John Alsop Paine, M.A. Ham.	<i>Newark, N. J.</i>
Alexander Smith Palmer, PH.B.	<i>Stonington.</i>
Julius Hayden Pardee,	<i>Oswego, N. Y.</i>
George Brinckerhoff Pumpelly,	<i>Owego, N. Y.</i>
William North Rice, B.A. Wesl. Univ.	<i>Springfield, Mass.</i>
Charles Shepard Rodman,	<i>New Haven.</i>
Charles Joseph Sheffield,	<i>New Haven.</i>
James Bennett Stone, C.E.	<i>Boonton, N. J.</i>
William Stone, B.A.	<i>Croton Falls, N. Y.</i>
Franklin Wallace Stowell,	<i>Brooklyn, N. Y.</i>
Frederic Terry,	<i>New Haven.</i>
Clarence Hawkins Upton,	<i>Rochester, N. Y.</i>
Sereno Watson, M.A.	<i>Hartford.</i>
William Clarke White,	<i>Rochester, N. Y.</i>
Gardiner Howland Wolcott,	<i>Astoria, N. Y.</i>

Seniors,	14
Juniors,	32
Freshmen,	39
Special Students,	38
Total,	123

PROGRAMME.

Object.

THE object of the Sheffield Scientific School is to provide young men with instruction in the various departments of Mathematical, Physical and Natural Science. By an act of the Legislature it has been constituted the Connecticut college for the promotion of Agriculture and the Mechanic Arts, and has received the benefit of the land appropriation bestowed by Congress upon this commonwealth. As a department of Yale College it shares in the advantages which pertain to that long established seat of learning. Private generosity has provided additional facilities for the prosecution of scientific studies.

Organization.

The care of the institution is entrusted, under the President and Fellows of Yale College, to a Governing Board of thirteen professors, who are also the instructors of the school, each of them representing some department of learning. Seven other teachers are also employed.

The classes of the school are arranged in seven sections, as follows :

- I. CHEMISTRY AND MINERALOGY.
- II. CIVIL ENGINEERING.
- III. MECHANICS.
- IV. MINING AND METALLURGY.
- V. AGRICULTURE.
- VI. NATURAL HISTORY AND GEOLOGY.
- VII. SELECT COURSE IN SCIENCE AND LITERATURE.

The arrangements of all these sections are fully exhibited below.

Building and Apparatus.

Sheffield Hall, in which most of the instruction is given, is a large and well arranged building containing recitation and lecture rooms for all the departments of the school, a hall for public assemblies and lectures, a drawing room for the engineering class, laboratories for chemical and metallurgical investigations, a photographic room, an astronomical observatory, a museum, a library and reading room, besides studies for

some of the professors, where their private technical libraries and collections are kept.

The various collections of the School and of the College (so far as the latter are applicable to this department) have been described in the foregoing report.

Regular and Partial Students.

The pupils of the scientific school are thus classified : *first*, those who are pursuing a systematic and prescribed course of study, extending through three years, and leading to the degree of Bachelor of Philosophy ; *second*, those who have already been admitted to the degree of Bachelor of Philosophy, Science, or Arts, and are pursuing an advanced course of study leading to the degree of Doctor of Philosophy, or in some cases to the degree of Civil Engineer ; and *third*, special students, who have already made a certain degree of proficiency in some department of science, and are now pursuing special scientific studies under the personal direction of some of the professors.

Degrees.

The degrees below named are conferred by the Corporation of Yale College on students who have passed the required examinations at the close of their course, and are recommended as candidates by the Governing Board of the School :—

1. Bachelor of Philosophy, conferred at the termination of three years' study in any one of the several sections of the School ;

2. Doctor of Philosophy, conferred on those who have already been admitted to the degree of Bachelor in Philosophy, Science, or Arts (in this or in any other college), and who have successfully pursued in this college a higher course of study,—when the Baccalaureate degree does not indicate an acquaintance with the Latin and Greek languages, the candidate being required to show some proficiency in these studies ;

3. Civil Engineer, conferred on students of the engineering section who have already taken the degree of Ph.B., and subsequently pursue with success the higher course of engineering.

In addition to the diploma of the Corporation, the instructors will give a formal certificate stating how long the student has been a member of the institution and in what department of study he is proficient. This certificate will be awarded only to meritorious students, after a thorough examination, and will be considered as the personal recommendation of the professors who sign it.

Conditions of Admission.

All applicants for admission must be not less than sixteen years of age, and must bring satisfactory testimonials of good character. Students intending to enter on the higher and special courses of study must exhibit satisfactory evidence of their fitness to take up the branches they propose to pursue.

Students desiring to go through any one of the prescribed three-year courses of the school, as candidates for the degree of Bachelor of Philosophy, must sustain an examination in the following books, or their equivalents :

Algebra—Davies, as far as General Theory of Equations. *Geometry*—Davies's Legendre.* *Plane Trigonometry*, including Analytical Trigonometry—Loomis or Davies. *The Elements of Natural Philosophy*—Loomis or Olmsted. *Arithmetic*, (including, after 1867, the Metric system of weights and measures.) *English Grammar, Geography, and the History of the United States*.

Some acquaintance with the Latin language is regarded as essential to the most efficient progress in the studies of the school, and accordingly it will soon be made a subject for the preliminary examination. All who desire it can so readily secure instruction in this tongue that none should neglect to secure the advantages which come from its study. In the French and German classes great assistance will be derived from previous training in Latin,—while but little will be gained by the preliminary study of French and German, as every class at present begins with the rudiments of these languages. Latin is also indispensable to the advanced students of Zoölogy and Botany, and is of value in the nomenclature of all departments of science.

In consequence of the incomplete preparation of many of the candidates, it is proper to say that the examination for admission is strict and full. As the studies above named are not pursued in the school, and are essential to successful progress, no one can be received as a scholar who is not well acquainted with these branches.

Candidates for advanced standing are examined, in addition to the preparatory studies, in those already pursued by the class they propose to enter. Any person admitted to an advanced standing, unless coming from another college, pays the sum of ten dollars as tuition money for each term which has been completed by the class which he enters. No one can be admitted as a candidate for a degree after the commencement of the last year of the course.

* Playfair's Euclid is *not* accepted as an equivalent.

Time of Admission.

The regular examinations for admission to the Scientific School take place at Sheffield Hall, on the Tuesday preceding "Commencement," at 9 o'clock, A. M., and eight weeks later, on that Wednesday in September on which the fall term begins—that is, in 1867, July 16, and Sept. 11. Opportunity for private examination may, in exceptional cases, be given at other times.

Terms and Vacations.

The public Commencement is held on the last Thursday but one in July of each year. The first term begins eight weeks from the day before Commencement and continues fourteen weeks; the second begins on the first Wednesday in January and continues fourteen weeks; the third, of twelve weeks, begins, this Collegiate year, on the last Wednesday in April and continues till Commencement. The intervening periods, of eight, two, and two weeks are assigned for vacations.

The graduating exercises of the Scientific School take place on the Monday (July 15, 1867) before the Public Commencement.

Tuition.

The charge for tuition is \$100 per year, payable \$35 at the beginning of the first and of the second term, and \$30 at the beginning of the third term. The special student of Chemistry will be at the additional charge of seventy-five dollars per annum for chemicals, and for use of apparatus. He will also supply himself at his own expense with gas, flasks, crucibles, &c., the cost of which should not exceed five or ten dollars per term.

The fee for graduation as Bachelor of Philosophy is five dollars.

Lectures.

Annual courses of lectures are given on the following topics :

FIRST TERM.

- On Metallurgy, by Prof. BRUSH.
- On Mining, by Prof. ROCKWELL.
- On Practical Agriculture, by Prof. BREWER.
- On Agricultural Chemistry and Physiology, by Prof. JOHNSON.
- On the History of Language and Linguistic Ethnology, by Prof. WHITNEY.
- On Entomology, by Prof. VERRILL.

SECOND TERM.

- On the Strength of Materials, by Prof. NORTON.
- On Metallurgy (continued), by Prof. BRUSH.
- On Mining (continued), by Prof. ROCKWELL.
- On Practical Agriculture (continued), by Prof. BREWER.
- On Agricultural Chemistry and Physiology (continued), by Prof. JOHNSON.

On Botany, by Prof. EATON.

On Structural and Systematic Zoölogy, by Prof. VERRILL.

On the History of Language and Linguistic Ethnology (continued), by Prof. WHITNEY.

On Physical Geography, by Prof. GILMAN.

On Military Science and Tactics, by Gen. A. VON STEINWEHR.

On the Principles of Mechanism, by Prof. LYMAN.

THIRD TERM.

On Mineralogy, by Prof. BRUSH.

On Rural Economy and Farm Management, by Prof. BREWER.

On Structural and Systematic Zoölogy (continued), by Prof. VERRILL.

On the Steam Engine, by Prof. LYMAN.

Examinations.

Oral examinations are held at the close of every term on the studies of the term, and written examinations are held every year on the studies of the year.



COURSES OF STUDY.

All who are candidates for the degree of Bachelor of Philosophy are expected to pass through the same course of instruction in the first year of their connection with the institution, unless they are admitted on examination to an advanced standing. The studies of Freshman year are those which are regarded as an important basis for all the higher instructions of the school. This introductory course includes a continuance of the mathematical studies required for admission, the general elements of Chemistry and Physics, the commencement of German, practice in English composition and Elocution, Surveying, and Drawing,—as will be seen more fully in the following outline. Near the close of Freshman year, every student is required to announce his selection of one of the seven higher courses of study,—and he is not allowed to change after the beginning of the second or Junior year without permission specially granted by the Governing Board.

Freshman Year.

INTRODUCTORY TO ALL THE SECTIONS OF THE SCHOOL.

FIRST TERM.

Mathematics—Davies's Analytical Geometry. Spherical Trigonometry. Surveying. *Physics*—Silliman's Principles. *English Language*—Exercises in Composition. *Chemistry*—Recitations and Lectures. *German*—Woodbury's Method and Reader.

SECOND TERM.

English--Rhetoric. Practical Exercises in Elocution. *German*--Woodbury continued. Selections from approved authors. *Physics*--Silliman's Principles, and Academical Lectures. *Chemistry*--Recitations and Lectures. *Mathematics*--Descriptive Geometry and Geometrical Drawing.

THIRD TERM.

English--Exercises in Composition. *German*--Selections. *Physics*--Silliman's Principles, and Academical Lectures. *Chemistry*. *Mathematics*--Principles of Perspective. *Botany*--Gray's Manual. *Drawing*--Free Hand practice.

Junior and Senior Years.

During the last two years of the course the students are instructed in separate sections, the particular arrangements of which may be found below. Each section is under the charge of special professors, with the exception of the Select Course, which is under the general charge of the Governing Board. To a considerable extent the students of the several sections recite together. The study of French is commenced in the Junior year, and is required of all the students.

I. CHEMISTRY AND MINERALOGY.

[Under the direction of Professors JOHNSON and BRUSH; Chemical Laboratory, Sheffield Hall, West Wing.]

The Sheffield Laboratory is fitted up in a complete and convenient manner, is provided with all the requisite apparatus and instruments of research, possesses a considerable collection of chemical preparations, and a consulting Library of the best treatises on Chemistry and the Chemical arts. It affords facilities for instruction in the various branches of theoretical and practical Chemistry.

Theoretical and Descriptive Chemistry are taught throughout the whole of the Junior year by lectures and by recitation,—Eliot and Storer's Manual and Miller's Elements being employed as text-books. The lectures of Professor Silliman to the Academical and Medical Classes are also accessible to the Senior students. Every autumn term a class recites from Fresenius's Qualitative Analysis. Extended courses of Lectures on Agricultural and Metallurgical Chemistry are given yearly.

Mineralogy is taught in the Junior Year by lectures, which are fully illustrated with hand specimens and models, and by weekly exercises throughout the Senior Year in the identification of minerals from physical and chemical characters.

The Laboratory is open for Chemical Practice seven hours daily, except on Saturday, when it is closed in the afternoon. The student repeats a large number of experiments from Eliot and Storer's Manual, and works through a course of qualitative and quantitative analysis, which is varied according to his capacity and the object he has in view. Each pupil proceeds by himself independently of the others, under the constant guidance of the Instructors.

In connection with the department of Mining and Metallurgy, especial attention is given to assaying and the investigation of ores and furnace products. The student in Agriculture has opportunity to acquaint himself with the modes of research employed in agricultural chemistry. The applications of the science to other branches of industry are taught as occasion requires.

The systematic course likewise includes instruction in Zoölogy, Botany, Geology, and the French and German languages, as will be seen from the following programme :

Freshman Year (see page 51).

Junior Year.

Inorganic Chemistry—Eliot & Storer's Manual, Recitations and Lectures. *Analytical Chemistry*—Fresenius. Recitations and Lectures. *Laboratory Practice*—Repetition of Experiments from Eliot & Storer's Manual. Systematic Qualitative Analysis. Use of the Blowpipe. Quantitative Analysis. *Mineralogy*—Dana's System, Lectures and Practical Exercises. *Botany*—Gray's Manual, Excursions and Preparation of Herbarium. *Zoölogy*—Lectures and Excursions. *French and German* (see Select Course).

Senior Year.

General Chemistry—Academical and Medical Lectures. *Agricultural Chemistry and Physiology*—Lectures. *Laboratory Practice*—Quantitative Mineral Analysis. Assaying. Organic Analysis. Special Investigations for Graduating Thesis. *Mineralogy*—Identification of Species. *Metallurgy*—Lectures. *Geology*—Dana's Manual. Recitations and Academical Lectures. *Human Anatomy and Physiology*—Academical Lectures. *Mechanics, Steam Engine, and other Prime Motors*—Lectures. *French* (see Select Course).

To advanced students, whether belonging to the regular classes or not, who desire to give attention to particular branches of chemistry, or to pursue original investigations, every facility is accorded.

The private libraries of the professors, containing the chemical journals and the recent foreign literature of chemistry and mineralogy, the large collections of ores, furnace products, &c., belonging to the School, and the extensive private cabinet of the Professor of Mineralogy, are freely used as aids in instruction.

II. CIVIL ENGINEERING.

[Under the direction of Professor NORTON.]

The special course in Civil Engineering comprises theoretical and practical studies, and exercises in field operations and in drawing. It is designed, in connection with the studies of the first year, to secure, at the same time, the thorough mathematical training and general scientific knowledge essential to success in the profession of Engineering; and it accordingly includes the careful study of the applications of Mathematics, Mechanics, Physics, Chemistry, &c., to Engineering, the use of Surveying and Engineering Instruments, and an extended course of practice in Field operations and in Drawing. The student is also enabled to acquire a sufficient knowledge of French and German to make himself acquainted with professional works published in these languages.

The following is the programme of the course of study:

Freshman Year (see page 51).

Junior Year.

Mathematics—Descriptive Geometry, with applications. Shades, Shadows, and Linear Perspective. Analytical Geometry of three dimensions. Differential and Integral Calculus. *Astronomy*—Theoretical Astronomy. Practical Problems. *French and German*. *Practical Surveying*—Triangulation, Surveying of a Harbor, &c. *Topographical Surveying*. *Drawing*—Isometrical, Topographical, Mechanical.

Senior Year.

Mechanics—Theoretical Mechanics. Applications of Calculus to Mechanics. Mechanics applied to Engineering. Principles of Mechanism. Thermodynamics. Theory of Steam Engine. Prime Movers. *Civil Engineering*—Strength and Stiffness of Materials. Bridge Construction. Stability of Arches. Stone-cutting, with graphical problems. Constitution and properties of Building Materials. Civil Engineering proper, or the Science of Construction. *Geology*. *French*—Selections. *Field Engineering and Surveying*—Location of Roads. Laying out Curves. Geodesy. *Designing*—Designing of Bridges, and other Structures. *Drawing*—Architectural and Structural.

The Department is furnished with a full set of instruments for Surveying and Field Engineering, and with a large collection of illustrative models.

HIGHER COURSE OF ENGINEERING.—The student in this department who on the completion of the three years' course has taken the degree of Bachelor of Philosophy, has the opportunity of pursuing a higher course, designed to give a special training, preparatory to professional

practice. This includes, together with higher theoretical studies, Practical Astronomy, with exercises in astronomical observations with the Transit Instrument, Meridian Circle, Zenith Telescope, and Sextant; and a course of exercises in the designing of structures. At the completion of this higher course the degree of Civil Engineer is conferred upon examination, and upon sufficient evidence being given of the ability of the student to design important structures, and make the requisite drawings, calculations, and estimates.

III. MECHANICAL ENGINEERING.

[Under the direction of Professor LYMAN.]

This section is closely connected with that of Civil Engineering, and many of the studies embraced in it are common to both. Prominence is necessarily given to the Mathematics and their applications, and to Mechanical Drawing, as lying, the one at the foundation of all thorough theoretical training, the other, at that of professional practice. With these are joined other branches of science, and modern languages, in order to secure both mental discipline and a better mastery of the special studies of the course.

The main object of the course is, by training the student in "such branches of learning as are related to the mechanic arts," to qualify him, as a mechanical engineer, for contributing towards the more efficient prosecution of these arts his services in the superintendence, construction, designing, or invention of machinery, in the management of mills or other mechanical works, or in the many other ways that lie within the scope of his profession.

It is not, of course, to be expected that the student will leave the institution with a full practical knowledge of the details of his professional work. The inculcation of the principles is the leading object. And yet, it is intended to bring the theory into as close relations with practice, as circumstances, and the time allotted to the course, will allow. To this end, practice in the use of tools is secured, for students needing it, in first-class machine shops in the city, to such extent as may be required. There is, as yet, for want of the necessary means, no shop for mechanical practice connected with the School.

PROGRAMME OF STUDIES.

Freshman Year (see page 51).**Junior Year.**

French and German (see Select Course). Descriptive Geometry with Applications. Analytical Geometry of Three Dimensions. Elementary Mechanics. Principles of Mechanism. Differential and Integral Calculus. Metallurgy. Shades, Shadows, and Linear Perspective. Isometrical Projection. Elements of Mechanical Drawing and Principles of Construction. Shading and Tinting, and drawing from patterns.

Senior Year.

French and German (see Select Course). *Analytical Mechanics*—Strength of Materials. Thermo-dynamics. Theory and Construction of the Steam Engine. Prime Movers. Theory of Machines. Mill work. Examination of Machinery. Mechanical Construction. Machine-shop Practice. Architectural Drawing. Drawing from actual Machines. Designs of Machines.

IV. MINING AND METALLURGY.

[Under the direction of Professors BRUSH and ROCKWELL.]

Although this section of the school has been but recently organized, instruction preparatory to mining and metallurgical pursuits has been given in the school since 1857. The Freshman year is the same as in the other courses (see page 51). The Junior year is devoted to special subjects included under Engineering and Mechanics, to Geology, and the French and German languages. The Senior year is occupied with Mining and Metallurgy, and laboratory practice in Chemical Analysis, including Assaying, the determination of the character and value of ores and furnace products, and the discrimination of minerals. Drawing is continued through both years. The lectures on Mining will discuss in detail known facts in regard to Ore Deposits—strata, beds, veins or lodes, stockworks and other irregular masses; Dislocations—faults, and other irregularities; Methods of search; Boring of different kinds with the various apparatus; Tools used in various kinds of mining and in different countries; Blasting; Sinking of shafts; Driving of Levels and Galleries; Timbering, Masonry and Tubbing for securing underground openings; Exploitation, or the opening out of mines and the working away of veins and strata; Transportation underground; Winding or raising the minerals to the surface, and machinery and apparatus; Pumps and Pumping Engines; Ventilation, its principles and

practice, natural and artificial, by furnaces and machines; Lighting—safety lamps; Mechanical Preparation of Ores, etc.

The lectures in Metallurgy will be divided into: (1.) *General Metallurgy*, including the physical and chemical properties of the metals and their ores, and of slags and other furnace products, the different methods used in both the dry and wet way in the extraction of metals; the character and effect of the different kinds of fuel; the materials employed in the construction of furnaces, crucibles, etc.; the details in regard to different forms of furnaces, blast, etc. Under (2.) *Special Metallurgy*, each metal will be considered by itself, its physical and chemical characters given in detail, with the characteristics of its ores, the methods for their assay, and the metallurgical processes employed for the extraction of the metal or metallic compound.

In extension of the present course it is proposed to add at least one year for a higher course, analogous to the higher course in Civil Engineering; this will include four to six months practice in the field in the study of mines and smelting works, to be followed by special Engineering or Chemical studies as applied to Mining and Metallurgy.

PROGRAMME OF STUDIES.

Freshman Year. (See page 51.)

Junior Year.

French and German—(See Select Course.) *Mechanics*—Peck's Elements. Principles of Mechanism. Theory of Steam Engine. *Mathematics*—Mining, Surveying—Shades, Shadows and Linear Perspective. Isometrical Projection. *Civil Engineering*—Strength of Materials. Stability of Arches. Higher and Topographical Surveying. *Geology*—Dana. *Drawing*—Mechanical and Topographical.

Senior Year.

French. (See Select Course.) *Mining*—Lectures. *General and Special Metallurgy*—Lectures. *General Chemistry*—Miller. *Chemical Analysis*—Fresenius. Recitations and Lectures. *Laboratory Practice*—Qualitative and Quantitative Analysis. Use of the Blowpipe. Assaying. *Mineralogy*—Lectures and Practical Exercises. *Zoölogy*—Lectures. *Mechanics*—Application to Engineering. *Drawing*.

V. COURSE IN AGRICULTURE.

[Under the direction of Professors BREWER and JOHNSON.]

This course is intended to prepare the student for the successful management of a farm by putting him in possession of a knowledge of the most approved methods of culture at present employed, and by explaining, so far as the state of learning admits, the reasons for these methods.

It is not expected to give a young man that familiarity with the mechanical operations of husbandry or that business capacity which is essential to the good farmer. These can only be acquired by assuming or sharing the care of a farm.

The course is in consequence adapted to those who are already familiar with rural affairs. Those who are practically ignorant of the varied details of farm practice can scarcely learn them thoroughly in an agricultural school, nor can they profit fully by the lessons proper to such an institution.

The main features of the course are, in addition to the mathematical and other studies of the first year, extended instruction by lecture in the Theory and Practice of Agriculture in all its branches; instruction in the French and German languages, in the accessory sciences, Chemistry, Botany, Zoölogy, Geology, Meteorology, and training in free-hand Drawing and experimental Chemistry.

Opportunities are offered for more particular attention to special branches, such as Horticulture, Forestry, &c., or to any of the sciences taught in the course, in their more detailed or specific applications.

In addition to the above brief programme, other topics of special interest and application in agricultural pursuits, receive attention.

Excursions under the direction of the professors, will teach the methods of out-door observation of natural objects, especially plants and insects useful or injurious to the farmer, as well as furnish illustrations of farming operations.

The Museum of this department has been already described.

SHORTER COURSE.—For the accommodation of those who do not wish to pursue the entire course, the lectures are so arranged, that those upon the subjects of more immediate practical use, are delivered during the Fall and Winter terms. These embrace Agricultural Chemistry, Practical Agriculture, Stock Breeding, and Agricultural Zoölogy. The lectures in the other departments are also accessible to such students. Those who desire can thus attend during seven months of the

year such a selection from the studies of the full course as will occupy their time profitably. For such admission to these lectures no examination is required, but testimonials of good character and the ability to profit by the instruction must be presented.

PROGRAMME OF STUDIES.

Freshman Year (see page 51).

Junior Year.

Agricultural Chemistry and Physiology—Structure and Physiology of Plants; Water, Atmosphere, and Soil in their relations to Vegetable Production; Improvement of the Soil by Chemical and Mechanical means. Domestic Animals: the chemical relations of their Food, Digestion, Respiration, Assimilation, and Excretion; Milk, Butter, Cheese, Flesh, and Wool as Agricultural products. Lectures. *Experimental and Analytical Chemistry*—Laboratory practice. *Meteorology*—Academical Lectures. *Physical Geography*—Lectures. *Zoology*—Lectures. *Drawing*—Free-hand practice. *French and German*—continued. *Excursions*—Botanical, Zoological, etc.

Senior Year.

Agriculture—The staple crops of the United States, their varieties, cultivation, management, and preparation for market. The Care, Breeding and Raising of Domestic Animals. Lectures and Recitations. *Experimental Chemistry*—Laboratory practice. *Agricultural Zoology*—Natural History of Domestic Animals; Insects useful and injurious to Vegetation. Lectures. *Human Anatomy and Physiology*—Lectures. *Geology*—Lectures and Recitations. *Rural Economy*, both American and foreign. Lectures. *French and German*—continued. *Excursions*—Botanical, Zoological, etc.

VI. COURSE IN NATURAL HISTORY AND GEOLOGY.

[Under the direction of Professors EATON, VERRILL, and MARSH; Laboratory in Zoölogy, Trumbull Gallery.]

Students in this department who are candidates for a degree, are required to complete the regular course of studies during the Freshman year. A knowledge of Latin and Greek is, also very desirable.

Students, not candidates for a degree may have special courses arranged for them by the Instructors from the studies of the Junior and Senior years, or additional thereto, if desirable.

The instruction in Zoology includes,

First—Courses of Lectures during the second and third terms of the Junior year, on Structural and Systematic Zoölogy; and during the first term of the Senior year, on general and applied Entomology and other special subjects, such as Embryology, Geographical distribution, Nomenclature, &c.

Second—Direct practical instruction to special zoölogical and geological students, in the Zoölogical Laboratory, where they are taught to prepare and arrange collections of various animals, and fossils and, by making critical identifications, to become acquainted with scientific literature, and to make dissections in studying comparative anatomy and embryology. They are also, when sufficiently advanced, encouraged to make original investigations. For these, purposes, specimens, both recent and fossil, belonging to the College Museum, are made use of as may be required.

Third—Zoölogical Excursions in connection with the lectures are instituted during the spring and autumn, to afford the students opportunities to collect and observe the habits of both land and marine animals, including those that live only in deep water, and are obtained by dredging. By these excursions several thousand specimens have been added to the College Museum during the past two years, in addition to those retained by some of the students for private collections.

PROGRAMME OF STUDIES.

Freshman Year (see page 51).

Junior Year.

FIRST TERM.

Zoölogy—Daily Laboratory instruction; Zoölogical Excursions. *Botany*—Gray's First Lessons. *Chemistry*—Academical Lectures. *French and German*—Selections.

SECOND TERM.

Zoölogy and Paleontology—Laboratory Practice, Lectures. *Physical Geography*—Lectures and Recitations. *Chemistry*—Laboratory Practice. *French and German*—continued.

THIRD TERM.

Zoölogy and Paleontology—Laboratory Practice, Lectures, Excursions (land and marine). *Botany*—Gray's Manual; Excursions. *Mineralogy*—Dana, Lectures and Practical Exercises. *French*—continued. *Drawing*—Free Hand Practice.

Senior Year.

FIRST TERM.

Zoölogy and Paleontology—Laboratory Practice, Lectures, Excursions. *Geology*—Dana's Manual, Excursions. *Meteorology*—Academical Lectures. *French*—Selections.

SECOND TERM.

Zoölogy and Paleontology—continued. *Botany*—Lectures on special subjects. *Geology*—Dana, Recitations and Lectures. *Anatomy and Physiology*—Academical Lectures. *French*—Selections.

THIRD TERM.

Zoölogy and Paleontology—continued, with Excursions. *Photography*—Practical Instruction. *Preparation of Thesis. Examinations* in the studies of the course.

The Zoölogical and Geological Museum, which is accessible to all students, is already extensive and amply sufficient to afford materials for the most advanced studies, as well as for the illustration of lectures.

The College Library, the Scientific School Library, and the private libraries of the Instructors contain a large number of works required for the more advanced studies in this Department which students are allowed to use in the most liberal manner.

A large number of valuable diagrams have been prepared to illustrate the Zoölogical Lectures and the microscopes and other instruments belonging to the Instructors, are freely used for the same purpose.

The large private herbaria and botanical libraries belonging to the Instructors are open to the use of students, to whatever extent they may be needed, thus enabling the more advanced students to prosecute their studies to great advantage.

VII. SELECT COURSE IN SCIENCE AND LITERATURE.

[Under the direction of the Governing Board.]

The Select Course has been arranged to meet the wants of those young men who desire an education based chiefly on mathematical and physical science, and the modern languages, and who are not disposed to pursue either of the special courses already enumerated. The Freshman year is the same as in the other departments of the school. In the second and third years the scholars are trained in a selection from the studies prescribed for the other sections, and they also attend the lectures of President WOOLSEY and some of the other instructors of the academical department, and recite in text-books which illustrate these lectures.

As it is designed to make this course a valuable means of preparation for advanced scientific studies, it is hoped that especially the younger students who may avail themselves of its advantages will do so with the intention of going forward to pursue still higher branches of learning. Students who enter upon the higher studies taught in the school having that acquaintance with French and German, the mathematics, and the natural sciences, which may be secured by an attendance upon the select course, will pursue their special professional studies with peculiar advantages.

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PROGRAMME OF STUDIES.

Freshman Year (see page 51).**Junior Year.**

MODERN LANGUAGES.—*French and German*, continued. English Composition and Literature.

MATHEMATICS.—Peck's Mechanics, Norton's Astronomy.

NATURAL SCIENCE.—*Agricultural Chemistry*—Lectures. *Zoölogy*—Lectures and Excursions. *Botany*—Lectures and Excursions. *Mineralogy*—Lectures. *Physical Geography*—Lectures and recitations.

HISTORY.—Recitations.

DRAWING.—Free Hand, and Architectural.

Senior Year.

LANGUAGE.—*French or German*, continued. Lectures on Language and Linguistic Ethnology. Compositions.

NATURAL SCIENCE.—*Botany and Zoölogy*, continued. *Geology*—Recitations and Lectures. *Meteorology*—Lectures. *Human Anatomy and Physiology*—Lectures. *Astronomy*—Lectures.

PHILOSOPHY AND HISTORY.—Lectures and recitations, in *History and Political Philosophy, International Law, Political Economy, Ethics, and Metaphysics*.

Preparation of a graduating thesis.

Higher and Partial Courses of Study.

Graduates of this and other colleges, and other persons who have made some advancement in the study of natural science, may be admitted to the Sheffield Scientific School as students of special branches. Such persons must enrol themselves under the guidance of one or more of the professors, who will be responsible for their instruction; and every facility which the institution affords for the prosecution of their advanced studies will be freely accorded to them. Those who have already taken a Bachelor's degree in Arts, Philosophy or Science, may become candidates for the degree of Doctor of Philosophy. To students of this class the chemical and metallurgical laboratories, the higher course of engineering, the astronomical observatory, and the instructions in the various branches of natural history and geology, present unusual advantages for the prosecution of scientific researches. The shorter course in Agriculture is referred to on page 58.

APPOINTMENT OF STATE STUDENTS.

Announcement of the Appointing Board.

I. By appropriating to the Sheffield Scientific School of Yale College the income of certain funds derived from the sale of United States lands, the State of Connecticut has provided for the gratuitous instruction of a number of pupils in the various departments of the School.

II. The persons to receive this free tuition are to be selected from the candidates who offer themselves, by an Appointing Board, consisting of the Governor, the Lieut.-Governor, the three senior Senators, the Secretary of the State Board of Education, and the Secretary of the Sheffield Scientific School.

III. This privilege of free instruction must be assigned in accordance with the following principles, viz :

1. The candidates for appointment must be citizens of this State.

2. Preference will be given to such as are "fitting themselves for agricultural and mechanical or manufacturing occupations, who are or shall become orphans through the death of a parent in the naval or military service of the United States, and next to them such as are most in need of pecuniary assistance."

3. The appointments must be distributed as far as practicable among the several Counties of the State in proportion to their population.

IV. Candidates nominated by the Appointing Board are to be admitted to the School "upon the same terms and are to be subject to the same rules and discipline as the other pupils of the School, with the single exception that they shall not pay anything for their instruction."

V. The Appointing Board will meet in New Haven on Tuesday, July 16th, and also on Wednesday, September 11th, 1867. Persons desiring to avail themselves of the bounty of the State may apply, in writing, previous to the meeting of the Board, to the Secretary, who will furnish a printed form of application, to be filled up by each candidate, and will present all applications to the Board for their decision.

DANIEL C. GILMAN,
Secretary of the Appointing Board.

CALENDAR.

1866.

Sept. 12th,	Examination of Candidates for admission,	-	9 A. M., Wednesday.
Sept. 13th,	First Term began, - - - - -	-	9 A. M., Thursday.
Dec. 18th,	First Term ended, - - - - -	-	Tuesday.

Winter Vacation of two weeks.

1867.

Jan. 3d,	Second Term began, - - - - -	-	9 A. M., Thursday.
Feb. 14th,	Annual meeting of the State Visitors, - -	-	Thursday.
April 9th,	Second Term ends, - - - - -	-	Tuesday.

Spring Vacation of two weeks.

April 24th,	Third Term begins, - - - - -	-	9 A. M., Thursday.
July 15th,	Exercises of Graduating Class, - -	-	Monday.
July 16th,	Examination of Candidates for admission, -	-	9 A. M., Tuesday.
July 16th,	Meeting of the Appointing Board, - -	-	Tuesday.
July 18th,	Commencement, - - - - -	-	Thursday.

Summer Vacation of eight weeks.

Sept. 11th,	Examination of Candidates for admission, -	-	Wednesday.
Sept. 11th,	First Term begins, - - - - -	-	Wednesday.
Dec. 18th,	First Term ends, - - - - -	-	Tuesday.

2

FIRST ANNUAL REPORT

OF THE

SECRETARY

OF THE

Connecticut Board of Agriculture.

1866.

Printed by Order of the Legislature.

HARTFORD:

PRESS OF CASE, LOCKWOOD AND COMPANY.

1867.

STATE BOARD OF AGRICULTURE.

PRESIDENT.

HIS EXCELLENCY GOVERNOR J. R. HAWLEY.

VICE-PRESIDENT.

E. H. HYDE.

SECRETARY.

T. S. GOLD.

APPOINTED BY THE GOVERNOR AND SENATE.

E. H. HYDE, STAFFORD.

H. S. COLLINS, COLLINSVILLE.

PROF. S. W. JOHNSON, NEW HAVEN.

CHOSEN BY THE COUNTY SOCIETIES.

HARTFORD COUNTY,	D. H. WILLARD, Newington.
NEW HAVEN	" C. B. WHITTLESEY, New Haven.
NEW LONDON	" JOHN BREWSTER, Ledyard.
FAIRFIELD	" JONATHAN CAMP, Norwalk.
WINDHAM	" CHARLES OSGOOD, Abington.
LITCHFIELD	" J. D. PERKINS, Litchfield.
MIDDLESEX	" H. L. STEWART, Middle Haddam.
TOLLAND	" J. S. YEOMANS, Columbia.

REPORT.

To the General Assembly of the State of Connecticut :

THE Connecticut State Board of Agriculture met for organization, according to the provisions of the Act of the General Assembly at the New Haven Hotel in New Haven, August 1st, 1866, at 10 A. M.

The meeting was organized by the appointment of His Excellency Governor J. R. Hawley, President *pro tem*, and H. S. Collins clerk. There were present, His Excellency Governor J. R. Hawley, and Messrs. J. Brewster, D. H. Willard, J. S. Yeomans, H. L. Stewart, J. Camp, J. D. Perkins, H. S. Collins, S. W. Johnson, C. B. Whittlesey, E. H. Hyde, and Charles Osgood.

To effect a permanent organization, the following resolution was passed by the Board.

Resolved, That the officers of the Board be a President, Vice-President, and Secretary.

The following persons were then elected.

President, HIS EXCELLENCY J. R. HAWLEY.

Vice-President, HON. E. H. HYDE.

Secretary, T. S. GOLD.

After discussion it was *voted*, That a Committee be appointed to prepare Blanks for the returns of the County Societies, and by-laws for the Board.

T. S. Gold and Prof. S. W. Johnson were appointed as this Committee. The Report of the Committee was made and accepted, and a form of blanks adopted for the returns of the County Societies.

The following Resolutions were then passed :

Resolved, That the annual meeting of the Board shall be held on the first Tuesday in June, at the State Capital, where the General Assembly convenes.

Resolved, That a regular meeting of the Board shall be held on the second Tuesday in January; the place to be designated at the previous annual meeting; the next meeting to be in New Haven.

Resolved, That members be appointed by the Board to visit the different agricultural exhibitions of the State, and report to the Board.

The delegates appointed were as follows :

Hartford County,	Mr. Camp,	Oct. 2, 3, 4, 5.
Tolland	"	" Collins, Oct. 10, 11.
New Haven	"	" Perkins,
Middlesex	"	" Whittlesey, Oct. 2, 3,
New London	"	" Hyde, Sept. 24, 25, 26, 27.
Windham	"	" Brewster, Sept. 18, 19, 20.
Litchfield	"	" Yeomans, Sept. 19, 20.
Fairfield	"	" Stewart, Sept. 25, 26, 27, 28.

A drawing by lot was made to ascertain which members of the Board should retire from office on the second Wednesday of May, according to Sec. II. of the Act of the General Assembly, establishing the Board of Agriculture. The result was as follows.

Of the members appointed by the Governor, Messrs. S. Gildersleeve and E. H. Hyde retire in May, 1867.

Of the County Delegates, Messrs. Brewster, Stewart, Camp, and Perkins retire in May, 1867.

The Board adjourned till 2 P. M.

The Board met according to adjournment, at 2 P. M.

On motion of Mr. Hyde, it was

Resolved, That a Committee be appointed to propose subjects and essays for discussion at the meeting in January. Prof. Johnson, and Messrs. Gold and Collins were appointed as this Committee.

A suggestion was made that the Secretary should propose questions to direct the investigations of the delegates to the County Fairs.

Mr. Gildersleeve was not present at the meeting, and subsequently declined serving on the Board.

The Board adjourned *sine die*.

In pursuance of my duty as prescribed by the Act of the General Assembly, establishing the State Board of Agriculture, I have visited as many of the agricultural fairs held in the state, as time would allow, and submit a Report of my observations.

The Seventh Annual Fair of the Union Agricultural Society was held at Falls Village Sept. 11th and 12th. This Society enjoys the use of beautiful enclosed grounds, on the banks of the Housatonic, situated about half a mile from the village. The convenience and beauty of the location have much to do with the success of this Society.

Eight towns in the north-western corner of the State, comprising the Seventeenth Senatorial District, compose this Society, with the addition of Sheffield and New Marlboro, in Mass., and North East in New York.

A general good feeling and a worthy spirit of emulation exists among the farmers of this section, shown by the manner in which their annual fairs are maintained. The show of "blood stock" was small, the dairy and fattening of cattle, being the leading branches of farming in this section. Some very superior fat cattle were on exhibition.

Of sheep, there were very good Merinos, South Downs and Cotswolds, showing that this department of husbandry, though on the decline, is still pursued in this section of the State.

The Horse interest here is an important one, as large numbers are used in the heavy transportation connected with the numerous iron works. Few farmers keep less than a pair, and with the introduction of the mowing machine, horse-rake, and other implements of husbandry best worked by horses, there is a growing disposition to substitute their labor on our farms for that of oxen.

But this will hardly allow of their great preeminence in premiums as awarded at the Fair, as the horses received more than three-fifths of the whole amount awarded for live stock.

The Ridgefield Agricultural Society held their ninth annual Fair Sept. 18th, 19th, and 20th. The large tent of the Fair-

field County Society was filled with agricultural and horticultural products and domestic manufactures. The fruits and flowers were particularly worthy of commendation. I was present but one day and cannot speak from personal observation of the other departments, but learn that they were well sustained.

While we admit that the interest in some of the county exhibitions is diminished by the town fairs, yet when we see one as active and successful as the Ridgefield Society, we cannot withhold our approbation.

The twelfth annual Fair of the New London County Agricultural Society was held at Norwich, Sept. 25th, 26th, 27th and 28th. A large and substantial building is located within the inclosed grounds of the Society, well adapted to the exhibition of agricultural and horticultural products and manufactured articles. There are also permanent stalls for the accommodation of live stock. These conveniences enable them to keep up their fair successfully for four days. I was present during the first two days of the Fair, and although the weather was unpropitious, yet the show in all departments was very satisfactory. All the leading classes of cattle were well represented. New London County may well be congratulated on the spirit manifested by her farmers in maintaining this institution, and on the possession of so much fine blood stock, showing its benefits in the past in improving the cattle of the county and promising so much for the future.

The twenty-sixth annual Fair of the Fairfield County Society was held at Norwalk, Sept. 25th, 26th, 27th, and 28th. I did not see the cattle, as they were withdrawn before I arrived, but I learn that the show was a good one.

The Society own a large tent which was filled with fruits and flowers, products of the farm, the household, and the shop. Comparing this exhibition with one I attended in the same County some twenty years since, very marked progress is visible. The choice varieties of fruits, flowers, and vegetables which adorned their tables at this time, were scarcely known then, much less were they found in common culture.

In this County, less than one-half the premiums paid for animals were awarded to the horses.

The Middlesex County Fair was held at Middletown, Oct. 2d, 3d, and 4th. I have only to say that the exhibition was entirely unworthy of so rich a County as Middlesex, and showed a lack of interest entirely discreditable to the farmers of the County. These remarks apply, of course not to the few exhibitors, but to those who staid at home and neglected to do their part in the exhibition.

The Hartford County Society held their Fair Oct. 2d, 3rd, 4th, and 5th. The exhibition of Agricultural and Horticultural products, Domestic manufactures, Arts and Fine Arts, was held in the City Hall, and was open for four days. The Show of Cattle was on Thursday, and of Horses on Friday, at the grounds formerly occupied for the State Fair. The Cattle were present in goodly numbers and of excellent quality. The train of working oxen from Bloomfield, for weight and quality, could not easily be surpassed by any Town in the State. The trial of single pairs upon a loaded cart showed wonderful docility and skillful training. The different methods employed at the different Fairs in testing the training and strength of working oxen, while they form one of the most interesting features of the show, would indicate that there is as much room for improvement here as in any part of our exhibitions. In some, the cart, in others, the stone boat is alone used. With some, docility and training have weight, with others, merely the exercise of strength is regarded, no matter how brutally the beasts are treated to cause the exertion.

The different classes of blood stock were well represented by animals highly creditable to their owners. With a good home market, a fertile soil, and with such stock on their farms, there appears no reason why Hartford County farmers should wish to change places with any others in the country.

The Cotswold sheep of Burdett Loomis, Esq., of Windsor Locks, both imported and those bred by himself, would do credit to any exhibition in any country; and it must be my excuse for special mention of them, that I consider them so

highly meritorious, and that the breeding of a class of sheep in New England, yielding both wool and mutton, is moving in the right direction towards a more profitable husbandry.

The display of fruit and vegetables was very good. In nothing has the progress of the last twenty years been more marked than in fruit culture. Though the cultivator meets with many difficulties which formerly were unknown, yet we find the tables at our annual shows, year by year, loaded with a greater variety and choicer specimens.

The fourteenth annual exhibition of the Tolland County Agricultural Society was held at Rockville, October 10th and 11th.

I was present on the first day. The cattle were few in numbers, and some of them inferior in quality. The impression derived was, that the farmers of Tolland County, with a few honorable exceptions, did not do fairly by their Society. This lack of interest in their Fair indicates a lack of enterprise in their farming, and to encourage this enterprise they need to unite in sustaining their County Society. There was a fair display of fruit and vegetables, yet not in sufficient abundance to cause us to change our expressed opinion that the farmers were not interested in the support and success of this, their own institution. The manufacturers, too, who are so numerous in this county, manifest the same indifference.

New Haven County held no Fair this year, but the Town exhibitions of Guilford, Bethany and Milford, were reported to have been successful.

I was not present at the Litchfield County Fair, held Sept. 19th and 20th. Notwithstanding the unpropitious weather, the number of cattle (731) was greater than ever before, and the exhibition of manufactures more extensive.

The Greenwoods Society at Winsted, Housatonic at New Milford, and the Woodbury, all held successful exhibitions.

The Fair of the Windham County Society was held at Brooklyn, Sept. 18th 19th, and 20th, and with that at Woodstock on the 26th and 27th, was a good representation of the industry of the County.

For particulars of these and other exhibitions, I must refer you to the reports of your Committees.

I have to thank the officers of the Societies for many courtesies extended to me, and hope to be able more at leisure to accept the hospitality of the farmers, and become better acquainted with the husbandry of the State.

A hasty review of the agriculture of the State the past season, shows that the labors of the husbandman, with few exceptions, have been abundantly rewarded. Prices have been satisfactory, and the farmer has no reason to complain of his crops or markets.

In common with other branches of business, agriculture at present feels the depression consequent upon the diminished value of gold, effecting all values. Yet we think there is no over-production of the fruits of the earth, or animal products, that will require any ruinous fall in prices. We must expect some depression as we approach a specie basis; yet the farmer who sells his products at the market rate, when they are ready for market, without holding on for old or higher rates, will be as safe as those engaged in any other business.

In some sections, the hard winter of 1865-6 injured the meadows and pastures to such an extent that they have failed to give their usual crop. Apples and other fruits were also a partial or total failure in many parts of the State. It is a question for the statesman as well as the agriculturist, how far the destruction of our forests may have modified our climate, and been the cause of the wide spread failure of the fruit crop.

The unrestrained sweep of our wintry winds brings down upon us more directly the cold of the arctic regions, while in spring the chilly blasting east winds reach farther inland, and prove more fatal to the blossoms and young fruit. A certain amount of forest seems necessary to secure the requisite amount of moisture and of shelter. When this is unduly diminished, the product of a country is by no means increased, as its cleared and cultivated lands are increased, but on the other hand may be diminished. We fear that we have

already passed the point where the productiveness of the State is to be increased by more extensive clearings, and that we must work back by the slower process of rearing forests, until the proper medium is attained. Certain it is that we have thousands of acres that make less returns to the owner, now that they are stripped of their natural growth of wood, and with the scanty tillage they receive, than they would as forest land, to say nothing of the effect upon the local or general climate.

A meeting of the Board of Agriculture was held at the New Haven Hotel in New Haven, Jan 8th, 1867, at 10 A. M.

His Excellency, Gov. J. R. Hawley, President.

Present, Messrs. Robinson, Stewart, Hyde, Perkins, Brewster, Johnson, Willard, Camp, and Gold.

The report of the last meeting was read and accepted.

The Secretary reported the doings of the Committee on Essays and subjects for discussion, and presented the programme for the three days session of the Board as follows:—

Programme of the Meeting of the Connecticut State Board of Agriculture, New Haven, January 8th, 9th and 10th.

TUESDAY, JANUARY 8.—10 A. M. Business Meeting at the New Haven Hotel. 3 P. M. Lecture, "Irrigation in California," Prof. Wm. H. Brewer. 7 P. M. Lecture, "Recent Investigations concerning the Source and Supply of Nitrogen to Crops," Prof. S. W. Johnson.

WEDNESDAY, JANUARY 9.—9 A. M. Business Meeting. 4 P. M. "Discussion on Drainage." 7 P. M. Lecture 1st, "Diseases of Plants caused by Fungi," Prof. Wm. H. Brewer.

THURSDAY, JANUARY 10.—9 A. M. "Discussion on Fruit Culture." 3 P. M. Lecture 2d, "Diseases of Plants caused by Fungi," Prof. Wm. H. Brewer. 7 P. M. Lecture, "The Principles that may guide the Farmer in the selection and use of Fertilizers," Prof. S. W. Johnson.

BUSINESS MEETINGS will be held at the New Haven Hotel ; LECTURES and DISCUSSIONS at the Hall of the Sheffield Scientific School.

After the Lectures, opportunity will be given for discussions, and all interested are invited to attend.

T. S. GOLD,

Secretary Conn. State Board of Agriculture.

The members of the Board appointed as delegates to the Fairs then made their reports to the Board, which were accepted.

The Secretary presented his report of his labors, which was accepted.

Board adjourned to 3 P. M.

The Board met at the Hall in the Sheffield Scientific School at 3 P. M., Tuesday, Jan. 8th, to hear a lecture by Prof. Wm. H. Brewer, on

IRRIGATION IN CALIFORNIA.

You know that there is a great difference between our climate and that of California. Everywhere west of the 100th meridian of longitude, or west of the middle of Kansas, the climate in the summer is warm and dry and purer than the climate we have here. There is a much greater difference in the amount of rain that falls in the summer. These are dry, while the winter is wet.

Over a large part of California scarcely any rain falls during seven months, and when it does come it falls during late winter and early spring. You might think that no grain could be raised in a portion of our country which is subjected to a seven months' drought,—yet you have no idea of the immense crops which are raised there. The grain is sowed during the wet season ; and, getting a good start without having snow to check its growth, it ripens perfectly under that clear, cloud-

less sky ; and in some of those valleys they have enormous crops, which are larger than you have ever heard of here, and the reports of which we can scarcely make men believe.

Twenty-five miles from San Francisco, there was a farm of 400 acres in extent, which had grown a crop of wheat for ten years in succession. The yield was 16,000 bushels, averaging 40 bushels to the acre for the whole crop on favorable years. Sometimes, these crops, however, vary considerably. The area for growing grain is comparatively limited, compared with the enormous extent of the State ; and, as the seasons are sometimes uncertain, so are the crops. While in one case 90 bushels of wheat have been raised, and the average in other cases may be 40 bushels to the acre, yet two years afterwards only enough grain may be raised to supply the demand for seed. The uncertainty of the seasons makes this difference, but this may be remedied over a large part of the State by *irrigation*.

Over the plains and in the low grounds, the grasses we grow here are not grown. You find in these situations no turf or sod, and it is only when you get into the mountains that you find ground yielding all the varieties of grass with which you are familiar, upon which animals live. And yet, even here, there are immense tracts where a succulent herbage springs up after the rain, and then dries up in the summers drought, and the region then seems barren and unfit for grain. But the soil is not lacking in fertility,—with irrigation it will yield abundant crops of grain, where, without it, the region may be practically a desert. For you know that the same cause acts here to make these places deserts as everywhere else in the world. Most of the deserts of the earth are deserts from *lack of water*, and not from any lack of natural fertility.

The deserts of California are only deserts on account of lack of water. If you will devise any means by which water shall not fall in New Haven for some time, all our small plants will die. At the end of three or four years, there will be complete death if the drought remain this length of time, and

when the present signs of life pass away you will have a complete desert.

And there would be a desert only because you have no water. This is the case in parts of California, and when you supply the deficient element by bringing water from the mountains which overlie these high table lands, you may make these lands more productive than others which would seem to be more fit for vegetation.

In some of these desert places, large quantities of ammonia and the nitrates exist in the soil, so that when you water plants growing in such a soil, containing such rich fertilizers, you have the most beneficial results.

In *Owen's Valley*, which is within the limits of the Federal authority, and which is one of these desert valleys, when I passed up this valley in July, 1864, I found an encampment of soldiers at *Camp Independence*, at which place they had kept a rain gauge, and found that only three-quarters of an inch of rain had fallen in the space of 18 months. The soldiers got good water from the mountains. An immense amount of snow had fallen in the winter, and the mountains which rose 10,000 feet above the valley, were covered. With pure mountain water they watered the ground, and before this camp had been there two years, they not only raised garden vegetables enough for consumption, but the results of the experiment were marvellous.

Irrigation has been practised in California since the time of the early Spanish fathers. It was of a simple nature at first. They located generally in the vicinity of streams, and placed a water-wheel, rudely constructed, ten or twelve feet in diameter, so that it would move by the force of the current. Buckets holding about a quart of water were attached to these wheels, which would be filled, carried around to the opposite side, and by striking a little peg adjusted near the rim, they would be emptied, and so water the land. You will find the remains of these wheels standing in many places even up to this time.

These simple water wheels answered the purpose very well, and increased the crops considerably.

There were other kinds, which were moved by mule or horse power, which raised the water from large tanks and supplied it to the neighboring ground.

The next advance was to raise it by wind mills, and this is still carried on to a considerable extent.

All these were upon a small scale, but wherever larger works were attempted, they used to go far enough back into the country and up on to the hills, and dig a canal leading from a stream, and then carry the water by means of smaller ditches leading from the large one over the ground to be irrigated.

The amount of labor performed seems now to us to be very large, when we consider that it was done by Indians, but sometimes works on a great scale were carried on.

At the mission of San Gabriel, for instance; there was a little stream which came down from the mountains which was enough to water the yards and gardens. The whole country about was wet enough in the winter season, but was dry in the summer. As the Indians became more numerous they lengthened this ditch, and dug still deeper, and continued it until it was 23 miles long, and was carried to San Gabriel, where it furnished water for extensive irrigation. It was carried over the plains, and throughout its course it watered vineyards and fields. The whole scene must have been a beautiful sight indeed. In the year 1833 there came a change, when the temporal power of the priests was taken away.

The Indians would no longer work. The old ditches were broken down, and going there to-day, instead of blooming orchards and gardens, you will find a sterile waste, and perhaps, an old decayed stock of grapevines, or struggling rows of cactus, which mark the places where stood the dividing lines between the vineyards. I might go on to enumerate other examples, did time permit. Many of these water works had cisterns attached to them, which were lined with cement, and built precisely like those we read of in the Scriptures in Palestine or in Syria.

While the whole of California is not so dry as to require

such extensive irrigation, yet it would be beneficial over nine tenths of the state.

From one of the Reports of the California State Agricultural Society, I will read a few lines to illustrate the importance of Irrigation in that state. Speaking of the rivers, harbors, and gold mines of the state, the Report says:—

“ We have within the geographical limits of California over one hundred millions of acres of land, of which less than the one two-hundredth part is under cultivation, and that which is, can be vastly improved. We have a mild and salubrious climate—so mild that many tropical fruits can here be cultivated. We have a rich and fertile soil, tempting the labors of man. We have noble rivers and magnificent harbors, and in addition to which we have the richest gold field in the world.

* * * We have, beyond dispute, more than twenty millions of acres of land, which can be made suitable for cultivation, and twenty millions of acres which can advantageously be used for pasturage. * * But we have long seasons of drought; we have millions of acres of land now unfitted for the plow, because the heavens do not give us the refreshing rain in due season,” &c.

And yet, notwithstanding all these natural advantages, last season we sent grain from here to California, where at present we can find a good market for it.

Between the ranges of mountains everywhere in California are extensive plains. Among these the valley of the Sacramento is the most extensive. It is of enormous size. There are mountains upon both sides, and the plain itself is not absolutely level, for the base of the mountain slope may be from two to six hundred feet higher upon the sides than the middle of the valley. It contains an area of sixteen thousand square miles.

The whole state of Connecticut is only one third so large. You may travel over this whole valley without passing through timber, and may ride on day and night without seeing house or fence, and yet the whole of this soil is as fertile as it can be. In some places in the valley the plain has been irrigated. From some of the streams which come down from

the heights above, and before they debouch upon the valley, a ditch is dug and streams leading from this water the ground below. No large works in irrigation have been attempted, but much has been done in a small way. These ditches have been dug high up in the mountain so that when the river leaves the hills it no longer preserves its central channel, but innumerable little streams are conducted everywhere and in this way a large amount of grain-land has been irrigated.

At one of the places in this valley, called the *Four Creeks*, this manner of irrigating the land has been most successfully tried. North and South of this place you find a barren desert, and for many miles you will see scarcely any vegetation that horses can eat, except some few desert shrubs that have scarcely an existence. Upon reaching this Four Creek country you emerge from desert wastes, and suddenly you come upon fine farms and orchards that produce abundantly. They raise almost everything, and the rapidity of the growth of their crops through the long hot summer is perfectly wonderful.

In other places also you may take the stream from above and lead it down into the valley, and irrigation may be performed on so large a scale, that I venture to assert, that the person who lives until 1967 will see millions of dollars laid out in improvements, and farming carried on with immense success.

There are large portions of California where just such improvements are needed, and although you may raise crops without irrigation there, yet, where this is tried the soil is benefited, and larger crops are raised.

Now, what is needed in California is needed to a certain extent almost anywhere. A supply of water taken from a small stream and allowed to run through ditches over any of our fields, would increase their yield to a very great extent.

Irrigation by digging ditches and supplying water from a stream running near is not the only method practiced in California. They also dig wells, and raise the water from these and supply it to the land, a method almost exclusively

used for irrigating orchards and vineyards, and sometimes we find an enormous increase in the production of crops, which have had water supplied to them in this way.

In one of the official reports of the State Agricultural Society, there is an account of the farm of a Mr. Bidwell who was a practical and very intelligent farmer, upon whose lands this system of irrigation by wells was carried to perfection. Upon this farm was an orchard of fruit trees which had been irrigated for 14 years.

The smallest of these trees was 14 inches in diameter. In the case of other trees which had come from the seed planted three years before, they measured six inches above the ground, twenty-five inches in circumference. You see then the rapidity in growth upon lands which were once considered unproductive, before irrigation was introduced. There are other cultivators who go into this matter at still greater expense. Water has been pumped from rivers by steam when coal was worth from fifteen to twenty dollars in gold, per ton.

You might think here that to pump up water at such a cost was the height of folly. But if you look at the results of their work, you will not think that there was so much of folly in these undertakings.

One of the most extensive pieces of land irrigated in this manner is the nursery and garden of a Mr. A. P. Smith near Sacramento, a short account of whose results in irrigation I will read from one of the Official Reports of the State Agricultural Society. A committee had been appointed to visit and report upon the different farms of the state, and concerning Mr. Smith's gardens they say, "We examined the orchard, nursery, vineyard and vegetable gardens. In the latter we found one set of men gathering mature vegetables for the market, while another was cultivating those half-grown, and still another planting seed of the same sort. Mr. Smith keeps four wagons running into Sacramento with vegetables the entire year. It is usual for him to have cucumbers in market, on the 1st of January.

His grounds are watered by means of a ten horse power steam pump, capable of throwing ten thousand gallons per

hour into a reservoir fourteen feet above the surface. From this reservoir the water is conducted through more than six thousand feet of twelve inch earthen pipe, under ground. To these pipes are attached twenty hydrants, from which the water is distributed upon the surface through four thousand five hundred feet of canvas hose.

I might go on and multiply illustrations of what has been done for agriculture in this way, but I will stop here and tell you a little about what has been done for mining by water. Water is absolutely necessary for a great many of the processes occurring in mining; for washing the gold and conducting other operations, and it is safe to say that a great many of these mines could never have been carried on without the use of water, brought from a distance.

The State Legislature passed laws encouraging the so-called "Ditch Companies," a name which is not very high sounding, to be sure, but yet these same companies have accomplished specimens of engineering skill which have been wonderfully bold in their conception.

These companies go back into the mountains, find the stream and cut their ditches. These ditches must be cut through the rough country of the Sierra Nevada, often carrying the water over vallies in high aqueducts. One of the most extensive is that built by the so-called "Oak Flat Company." This Company built a flume twenty-two hundred feet long, and two hundred and eighty feet high. Put this flume in Rome, and it would have been dignified with the name of aqueduct, and been famous in history.

These flumes often go to ruin after they have been used for mining purposes. There are many such. But I have no doubt that these will still be turned to account for agricultural purposes. It has been done so in some places; these companies get their pay by selling the water to farmers who irrigate their orchards and yards in this way. They charge so much for the inch, that is an amount that flows through an orifice one inch square, and which is four inches below the surface.

When the population of the State shall have increased to a

sufficient extent to justify it, many of these works which go down with the exhaustion of the placer mines, will be reconstructed and devoted to agricultural purposes, and in this way millions of acres of land which are now comparatively sterile, will be made fertile and productive.

These "Ditch Companies" are still being incorporated, and there is one lately chartered with an immense capital, to irrigate land upon a large scale, the principal objection to which, and to all like these, is that it is easy to see that the productiveness of any part of the country through which these ditches run, will depend entirely upon the amount of water they supply to the neighboring land, and in many cases the farmer would be entirely at the mercy of these "Ditch Companies." It is the duty of Government to interfere, and take this matter into their own hands, and thus obviate this difficulty.

There are a number of practical and curious questions coming up as to the manner in which irrigation produces its good effects. In the first place there is a positive fertilizing effect from the materials brought to the soil, which are in solution; also by keeping the land in a proper degree of moisture, certain chemical changes are induced which increase the fertility of the soil. Whatever may be the cause of the increased productiveness, this much is certainly true that the experience of all time testifies to the good effects of irrigation in those countries which are subjected to drought. Experience has demonstrated that there is great fertilizing power in water.

We need only refer to the banks of the Nile, and more especially to certain barren parts of Syria and Palestine which were extremely fertile, so long as they were irrigated, but when this was left off they became barren again, and finally when water was again given to the sterile land, it resumed its original fertility.

Barbarous nations have understood this thing. The old Peruvians understood this before the days of the Spanish Conquest. From the Andes they brought the water down in thousands of little streams, which watered their orchards and

gardens, and a population of one hundred thousand received its food from the soil which had been so extensively irrigated, and on the west side of the Andes may still be traced extensive monuments of the work in this direction, which was done by the ancient Peruvians.

One of these canals was twelve feet in depth and one hundred and fifty leagues—that is four hundred English miles in length—the source of which was in the mountains, and watered through its whole course lands which up to that time had been barren and uninhabited.

But the Spaniard came with his conquests and his civilization, not “with power to build up, but to tear down and destroy.” They brought the poor Indian gunpowder and whiskey; they let these immense works go to waste, and the country became sterile again.

The same things are seen elsewhere. We see to-day the remains of these old works in Mexico.

At Chambuco, there was an aqueduct and reservoir which was destroyed by the Spaniards, built in the time of Montezuma.

We see the same remains in Syria, in Egypt, and in China, and in this last-named country there are millions to-day who depend upon the manner in which irrigation is carried on for their daily bread. If you take your map and look at the coast of China, you will see that an extensive chain of mountains, nearly a hundred miles in length, runs parallel to the coast of the Pacific. From these mountains rivers come down and water land, which is the most populous part of China. Peking is here, and there are millions of souls dependent upon the state of irrigation. If the water comes too freely and overflows the canals, it is one of the most frequent causes of rebellion. So even the political condition of the country depends upon the manner in which the irrigation of the land is carried on. These works date back for two thousand years, and are splendid specimens of engineering skill.

Great Britain has revived a perfect system of irrigation in modern times in India. The country was barren in many places, and the whole land subject to long droughts, and the

canals which have been built have opened up immense tracts of land which were once barren, and are now productive.

One of these canals is the greatest engineering triumph of modern times. It commences from where the Ganges debouches from the Himalayas, and is one hundred and forty-five feet wide at the bottom, one hundred and seventy-five feet wide at the top, and twelve feet deep. At the distance of eighty miles from the commencement, the first main artery is thrown off, and forty miles further on a second is thrown off, and so on. Two millions of acres are irrigated, and it supplies water to a region containing a population of six and one half millions of inhabitants. These canals are used for purposes of navigation and transportation as well as irrigation, and although they cost immense sums, amounting to five millions of dollars, yet they have well paid, and they make the British power very much more firm than it ever was before.

Now you naturally ask, why, if irrigation is so important, and its advantages so apparent, it has not been practiced to a much greater extent in America? The principal reason is that we can get along without it. Another reason is that we get our ideas of agriculture from English and German people. Their lands are less subject to drought than ours, and hence they do not see the use of irrigation.

So influenced by the opinions of English and German immigrants, we get along without irrigation. Where laborers, however, have come into this country from the south of Europe, they have gone to work at irrigation, and have made it pay. The Spaniards introduced it into California.

In Utah, they have water in all the streets, and use it most abundantly. It is one of the necessities of life with them, and they would starve if it could not be obtained from the mountains.

Our farmers are, I believe, not in favor of introducing irrigation. There are some who have tried it, individually on a small scale, and speak well of its effects. There are certain erroneous theories afloat, such as this,—that you must irrigate only with *soft* water, and not long ago I read in one of the Agricultural papers a communication from a farmer, who

seemed to be a practical man, to this effect: that water did good only when it contained lime. He said that this was his experience.

I have, however, known several cases where irrigation upon a small scale was performed, which was followed by good results, and I have no doubt if it were generally introduced that it would be the means of improving lands which heretofore have been valueless, and that it would add materially to the value of our grain crops.

TUESDAY, Jan. 8th, 3 P. M.

DISCUSSION UPON PROF. BREWER'S FIRST LECTURE.

After the conclusion of Professor Brewer's lecture upon the subject of irrigation in California, the Chairman of the meeting, His Excellency Governor Hawley, invited the members of the convention and others interested to enter into discussions upon irrigation, which were commenced by

Mr. CLIFT, of the American Agriculturist, who remarked that he had visited a farm, where irrigation had been practiced successfully. It was the farm of Mr. Clift, recently deceased, at the advanced age of 73, in Putnam County, New York. He was enthusiastic upon the subject of irrigation and had adopted it with the most gratifying results. His farm was originally a very rough piece of land, wet and swampy and covered with bulrushes, but now it has been redeemed by his own labors, and it has reached so high a state of cultivation that it has taken premiums in New York State as a specimen of the finest grass lands they have.

A stream of water runs the whole length of this farm. This he has tapped in several places, and has turned the water so as to allow it to run over his meadows. He uses it continually in winter and summer. A part of his fields were originally a pure gravel bed, which had so changed by irriga-

tion, without putting on any other manure than that contained in the water, that he had secured larger and larger crops from year to year, and was surprised at the results. He allowed it to run over his land in winter as well as in summer. The ice which formed in winter, did not seem to hurt his grass, although this is sometimes the case in other places where this manner of irrigation has been tried. His crops have increased so much that he sends a part of them to the New York market. In answer to a question, Mr. Clift said, that the stream of water which irrigated this land had its source in the hills very near where the Croton river originates.

Mr. GOLD remarked that in Scotland irrigation had been successfully practised. The use of sewerage water near Edinburg had reclaimed hundreds of acres of the poorest gravel land, and had brought them to that condition from which he would not venture to state what astonishing yields had been obtained. These lands are now the most fertile in all Britain, and the annual revenue from these waste places amounts now to far more than the purchase price of farm lands in this country.*

* Mr. Colman, in his *European Agriculture*, thus speaks of these water meadows near Edinburg, fertilised by the sewerage water from that city.

I come next to speak of a system of irrigation, established in Edinburg, which I looked at with a good deal of interest; where the sewerage water from the drains of the city are applied to grass lands in the neighborhood, which by this means are rendered extraordinarily productive.

The drainage water from a large portion of the city of Edinburg is collected into covered carriers and drains, and from these emptied into a small stream of water, very properly as one may suppose in such case, called the *Foul Burn*, the term *burn* being the Scottish name for a small stream or brook. Here it passes along in an open brook among some flat lands, which by proper arrangements it is made to overflow. I should state that before it reaches the places where it is thus diffused, it is received in tanks where the more solid parts are deposited. It does not require any extraordinary acuteness of smell, on approaching these irrigated lands, to become satisfied that the waters even after passing from the cisterns or tanks, are charged with odoriferous particles held in suspension.

This water, thus received is diffused over three hundred acres of land; and these lands are rendered productive to a most extraordinary degree. One of the principal proprietors, who held his land under a long lease, at a rent of £5 per acre, and sub-let this irrigated land at £30 per acre, informed me that it was sometimes cut seven times in a season. The grass is carried into the city a dis-

What they have done in Scotland may be done just as successfully near many of our towns in America. What has been done in California may be done to a smaller extent, on our own farms, and with a relative increase of our crops. Wild lands, in the neighborhood of which springs crop out, and which now produce nothing of value, may be wonderfully increased in productiveness. This may be done without incurring great expense.

Some ten years since he had turned the water of a small stream by a single furrow on to a piece of dry meadow having considerable inclination. In this simple way about one half acre was irrigated and the crop has more than doubled, while the quality has been much improved, for instead of the former fine dry wiry grasses, it now yields stout timothy. The water is turned on with the earliest thaws of spring, and allowed to flow over the land at intervals till the middle of June, when it is turned off. No other manure is applied, except that supplied by the water. The stream fails late in the season, so that fall irrigation has not been tried. The water of springs and streams has always been used on the farm whenever available and with the happiest results. In some cases irrigating the hill above has caused the land lower down to be saturated and suffer from excessive wetness, thus

tance of two or three miles, for the support of the cows which supply the city with milk. Different channels or gutters are formed for the admission of the water, so that the whole may be flooded. It is generally applied after every cutting, where the situation admits of it; but it is found advisable not to apply it immediately upon the grass being cut, nor before it has obtained some small growth.

The rent for which some of these meadows are leased in small portions to cow-feeders varies on an average from £10 to £30 per acre. Some of the richest of the meadows were let in 1835 at £38 per acre, and in that season of scarce forage, 1826, £57 or \$285 per acre were obtained for the same meadows.

"The waste land called *Figget Whins*, containing thirty acres, and ten acres of poor sandy soil adjoining them, were formed into water meadows in 1821, at an expense of £1000. The pasture of the *Figget Whins*, containing thirty acres used to be let for £40 and that of the ten acres for £60. Now the same ground as meadows, lets for £15 or £20 an acre per year, and will probably let for more as the land becomes more and more enriched;" that is land that before the irrigation let for 500 dollars per year, now under this improvement, yields an annual rent of from 3000 to 4000 dollars.

indicating the necessity of draining in connection with irrigation to secure the full benefit.

What has been done in this little spot, Mr. Gold thinks may be done in very many other places in Connecticut, and that too at a very small expense.

Thousands of acres in the Housatonic, Naugatuck and other valleys might be reclaimed, and rendered much more productive at small expense, and without the addition of other manure except that which comes by the water in solution.

In conclusion, Mr. Gold urged this subject upon the attention of the members of the Convention, claiming that we have around us plenty of sandy gravelly patches of land, that might be made to produce remunerative crops, by following out the suggestions of Professor Brewer's lecture.

Professor BREWER remarked that it has been urged as an objection to irrigation, that where water was allowed to stand upon the soil exposed to the sun's rays, malarial and other fevers were much more abundant. In some cases it has been proved however, where irrigation has been extensively practised in California, that fevers were just as prevalent before water had been allowed to flow upon the land as afterwards.

In other places where the experiment had been tried, it was asserted that these diseases did prevail to a greater extent. This is partly explained by the fact that in a district well irrigated, as population becomes more dense, the liability to disease is increased.

But it is safe to recommend the irrigation of our sandy tracts of land, which instead of being sterile and unproductive may become just as productive as lands elsewhere yielding large crops.

Mr. CLIFT, remarked that lands derived positive advantage from permitting water to remain upon them during winter. Some of our farm lands are admirably adapted to try the experiment of irrigation; and recommended in addition to water alone, stirring up the soil with the harrow so that air might get to the roots of the plant, and manure from substances in solution, more effectually penetrate the soil.

Mr. GOLD, remarked in reference to the effect of ice upon

meadows, that although it is clear that irrigation in the summer benefits lands, yet sometimes in the winter season, the water does kill the grass over which it is spread. And that the rule to be drawn from his observations is, that although grass is not always killed by ice, yet it is liable to die from this cause.

Mr. MORRIS, of East Haven, remarked that he had a farm which was located near the salt water. His observations about the beneficent effects of natural irrigation, had convinced him that artificial irrigation and drainage, were things to be recommended.

His experiments had been performed upon a piece of salt meadow-land which bordered upon a piece of fresh meadow-land, and which received during the winter, large quantities of surface water. There was a period when a dam was constructed across a certain creek, which supplied this meadow, and after the construction of this dam, the surface water was drained off. It was found that the fresh meadows during the next haying season, were far less productive, nor did that variety of grass usually grown upon salt meadows, called "Black Grass," improve by this drainage, but was diminished. The proprietors of the fresh meadow land, and of the salt marshes, came to the conclusion that the current of salt water through the creeks covering the meadows, was again necessary, and that the lack of salt water irrigation, accounted for the diminished crops.

Accordingly they let the tides again go up, and the fresh meadows became productive as before, while the black grass again grew upon the salt meadow land. This manner of irrigation is kept up through the winter, and the experience of farmers had been that no injury to the grass occurred from permitting the ice to lie during the cold season. There was mentioned one exception however, to this rule, when it was thought that the superincumbent ice did no damage.

Another instance of the value of irrigation, was noticed in the construction of a pond for ice. Around the stream which furnished the pond, and around the dam which had been built, it was noticed that the grass grew higher and was of

better quality ; which to his mind was another proof that water was highly necessary to crops, and that by irrigation much might be done to reclaim lands now waste and barren.

In answer to a question, Mr. Morris said, that in rainy seasons, the meadow lands bordering the salt water marshes, produced the most grass.

Mr. WILLARD, of Newington, remarked, that with reference to the effect of overlaying ice upon grass, he could relate one experiment, which was as follows :—

He had a piece of low flat meadow land, and around this he built a dam in such a way that it was covered with water all through the winter, and until late in the spring. His experience had been, that the grass was frozen, and damaged in quality, and where it was not entirely killed, instead of timothy and red top, the coarser grasses sprung up. He afterwards gave up this method of irrigation, and since then the quality has been very much improved.

PROFESSOR BREWER, remarked that with reference to the length of time water should remain upon the ground, there were many rules to be observed. In California they irrigated sometimes very often, and at other times not so often. There was a difference of opinion as to which plan might be the best.

In observations made at Sacramento, Cal., during overflows, they have endeavored to ascertain, how long fruit trees would live after the ground was completely covered with water. I cannot give the exact dates, but it was stated, while some would die, if submerged four weeks, others would stand it much longer. In the great flood of 1861-62, both fruit and other trees, withstood this submergence for several months, although some were killed. The time perhaps varies with other conditions, as well as with the different species.

The general plan was to give the grain a good wetting, and when the water has soaked thoroughly through the land, not to irrigate again, until two weeks, or even four weeks had passed. During the dry season, it was a general custom to irrigate the land every two weeks, and then not to irrigate again until it was pretty dry. Some say often, and some say

not. But it must be remembered, that these different practices may arise from differences in soil, crops, &c.,

Mr GOLD, called attention to the farm of Mr. Thrall, of Torrington, as furnishing a convenient example of irrigation in this state. He has upon his place a stream large enough to turn a mill ; and for the last 20 years, he has irrigated by water from this stream, a field of from four to six acres of low sandy land, and which has been made to produce abundantly. Mr. Gold, remarked that he has never observed manure to have been used upon this land. The expense was not excessive. He first erected a cheap wooden dam, to collect water for the supply of his fields. About ten years ago, he removed this wooden dam, and put up a stone dam at the expense of more than one hundred dollars, for the purpose of raising water to a sufficient height to make it flow through his little channels, and over his fields. His crop of course is large and fine ; and he is one of our practical farmers, who evidently thinks that irrigation pays well.

TUESDAY, Jan. 8.

Board met at the Hall of the Scientific School, at 7 P. M., to hear a lecture from Prof. S. W. Johnson, on

“ Recent Investigations Concerning the Sources and Supply of Nitrogen to Crops.”

In giving an account of the Recent Investigations concerning the sources and supply of Nitrogen to crops, it will be necessary to go back to first principles, in order to prepare ourselves for a complete understanding of the matter. Allow me therefore to make a brief review of the subject of Nitrogen as related to Agriculture.

In the first place let us enquire what part Nitrogen performs in the sustenance of the animal, and how it thereby contributes to the comfort and support of mankind. Nitro-

gen is demonstrated to be indispensable to the very existence of man and every other animal. Those ingredients of the food which the animal converts into its working tissues contain invariably about 15 per cent. of Nitrogen. This element exists to the same amount in muscles, in tendons, in the nerves, and other essential parts of the animal body that are of organic origin. More than this, the animal itself has no power to construct a solitary atom of the material out of which it makes its own muscles and tendons. It finds this material ready made in plants, which are primarily the food of all animals. It is the function of the plant to do this work for the animal.

In the animal we find *fibrin* solid, in the muscles and liquid in the blood, we find *albumin* in the blood, in the egg or embryo and in all the liquids of the body that are not excretions, we find *casein* in milk, the perfect food of the young. In plants principles exist that are strikingly similar to those just enumerated ; we have the *gluten* of wheat which is essentially a mixture of *vegetable fibrin* and *vegetable casein*, we find *vegetable albumin* in the juices of plants, and in the seeds of the oat, of maize, of the bean, pea, &c., vegetable casein is a large ingredient.

None of these *albuminoid* bodies, as they may be termed, exist in the soil or in the air. The plant organizes from the substances which it feeds upon—substances that are derived from the earth and the atmosphere—vegetable fibrine, vegetable albumin, and vegetable casein. The animal feeds upon plants and moulds over these vegetable principles into the fibrine, albumin, and casein of its muscle and other tissues, of its blood, milk and other secretions.

These nitrogenous ingredients of our bodies are as essential to our life and power as the iron and brass of a steam engine are necessary to its construction and working.

Unless we derived the material containing Nitrogen from the plant, we should not be able to repair the constant waste of our bodies. The plant itself cannot exist unless supplied with the substances from which it can organize albumin, fibrine and casein. If we should remove Nitrogen from our soil and at-

mosphere we should do away with all organic life, for the germs of all living things are largely constructed from the nitrogenous matters we have mentioned, and without albuminoids there is no growth in plant or in animal.

Now the question arises, whence does the plant acquire this essential nitrogen ?

In the atmosphere that surrounds us, Nitrogen is the chief ingredient. It forms in fact, four fifths of the weight of the air, a quantity by no means trifling. It is estimated that the atmosphere contains no less than 4,389,000,000,000 tons of this substance.

We see thus that there is no deficiency of this element in the air. But this nitrogen has no direct or immediate effect upon animal life. It is of no active use in respiration. Every time we breathe, four-fifths of the air we inhale is this gas which contributes in no way whatever to the vital processes or to the well-being of the animal. The nitrogen of the air is simply mixed there with other gases, but is not chemically united to anything. It is what we call *Free Nitrogen*.

Let us inquire what are its relations to the vegetable kingdom. The plant, as we well know, grows chiefly at the expense of the air. Of every load of hay we put into the barn, 80 *per cent.* is derived from the atmosphere, of every bushel of grain 84 *per cent.* is furnished by the air alone. In hay there is 8 *per cent.* of albuminoids or flesh forming materials, in grain there is 9-13 *per cent.* of these substances. But although the air is an immense and unfailing reservoir of nitrogen; the latter is for the most part of no more direct use to plants than it is to animals.

The chief solid ingredient of plants is carbon. It is this which remains in a comparatively pure state when plants are heated out of contact of air, as in the making of charcoal. Carbon which forms nearly half the weight of all dry vegetable matter, is, or may be, derived by the plant exclusively from the air. Common air contains $\frac{1}{5200}$ of its bulk of carbonic acid gas, a compound of carbon. This is sucked in by the leaves of vegetation and its quantity, though relatively

been proved to be amply sufficient for the demands of the most vigorous growth.

The question naturally arises, can a plant take up Nitrogen from the immense volume of this gas floating about it in the atmosphere? This question has been investigated by a number of intelligent experimenters, who have come to the conclusion from several long series of trials, that the free nitrogen of the air has no effect upon the plant. There is in fact no absorption, no fixation of Nitrogen when in the free state. I have here a diagram illustrating one of the methods employed in these experiments. [See figure, next page.]

It is to a distinguished Farmer and Philosopher, to the Frenchman Boussingault, whose name is destined to be forever illustrious for his devotion of a long life and ample fortune to the study of agricultural science and the advancement of agricultural practice, that we are mainly indebted for the solution of this problem.

Boussingault settled the question of the assimilation of free nitrogen in the following manner. The plant is developed from a seed, and if the seed be planted where the future plant shall receive no supply of nitrogen except from the surrounding air, and if we know the amount of Nitrogen in the seed with which we commenced the experiment and find that there is no further increase of it in the plant, obviously there is no absorption or assimilation of this element.

But if we find that the crop contains more nitrogen than the seed, then the reverse of this proposition must be true, assimilation of the nitrogen of the air must occur.

Boussingault took some pumice-stone and by treatment with fire and acids freed it from nitrogen. In order to supply everything else which the plant needed, he mixed this with some ashes which furnished the necessary mineral matter. He sowed in this prepared soil, which was placed at the bottom of a large glass globe of 20 gallons capacity, see figure, a number of seeds, the weight of which was known. He moistened this with absolutely pure water, so that nowhere in the apparatus was there any nitrogen, save the free nitrogen of the air and the nitrogen of the seeds. He furnished carbon by attaching a second



narrow-necked globe to the first, which was filled with carbonic acid gas. By cementing the two globes together, all communication with the external air was then cut off and the apparatus was placed in a garden with full exposure to sunshine, where it remained for several months during spring and summer. The seeds sprouted and the plants grew to a considerable height; when they had obtained their fullest development i. e. when they obviously grew only at their own expense—the lower leaves withering away by the absorption of their juices for the nourishment of new foliage above—the experiment was terminated by disjoining the globes, removing the plants and soil, and ascertaining by chemical analysis how much nitrogen the crop contained. Previous analyses of seeds similar to those planted showed what quantity of nitrogen was in them. It was found in a large number of distinct trials that *the nitrogen of the crop was equal to that of the seed, and it was accordingly demonstrated that the free nitrogen of the air is not available as such, to agricultural plants.*

Let us now look further into the sources which may supply nitrogen to the plant and see what other materials are at its disposal.

In the air we find small quantities of *ammonia* and of *nitric acid*. Ammonia is a compound of Nitrogen and Hydrogen. Nitric acid is composed of Nitrogen and Oxygen. These exist in the air in relatively very minute quantities. There is but one part of ammonia in fifty million parts of air while nitric acid is commonly present in even less proportion. These quantities are so minute as to produce scarcely an appreciable effect upon a plant which is small enough to be

weighed with accuracy. In fact, a plant weighing but a few ounces grows as well and acquires as much nitrogen when confined in a few gallons of air as when stationed in the free atmosphere, provided it be sheltered from rain and dew. It certainly gathers some ammonia and nitric acid from the air but the quantity is too small to be estimated. When water is precipitated from the atmosphere in the forms of rain, dew or fog, the ammonia and nitric acid of a large volume of air are gathered into a small bulk of the liquid and therefore the atmospheric waters contain a notably larger proportion of these substances than the air itself.

Ammonia amount to about 15 parts in ten millions of country rain. In city rains there may be ten times this quantity. Of Nitric acid there are three parts in ten millions of rain, snow and dew. Sometimes the proportion is larger, sometimes smaller.

The figures in the subjoined table give an idea of the amounts of these substances which come down annually upon a given surface.

In the years 1855-56, Mr. Lawes, a distinguished English experimenter, collected upon a rain guage having an area of $\frac{1}{100}$ of an acre, all the rains, dews and snows that could be gathered at his residence, Rothamstead, about 20 miles north of London. The waters for each month were separately analyzed by Prof. Way, Chemist to the Royal Agricultural Society of England, and the total quantities of ammonia and nitric acid found are given below, calculated for an acre of surface. Last year, 1866, Dr. Bretschneider published the results of a similar investigation made in Silesia, which are also stated below. The table gives likewise the quantities of nitrogen contained in both the ammonia and nitric acid.

AMOUNTS OF NITRIC ACID, AMMONIA, AND NITROGEN, BROUGHT
DOWN UPON AN ACRE BY RAIN &C., AT

	Rothamstead.		Ida-Marienhuetten.
	1855 lbs.	1856 lbs.	1866 lbs.
Nitric Acid,	3	2.8	3.7
Ammonia,	7.1	9.5	11.
Nitrogen of the above,	6.5	8.3	11.

Now let us enquire what is the effect of these substances upon vegetable life. We all talk about ammonia as a fertilizer, and the fact that it is so, has been abundantly confirmed by direct experiment. If you take pure ammonia, dilute it largely, and water plants with the solution, (taking care to make it *very* dilute,) good results will be invariably manifested. If you take the carbonate of ammonia—the salt of hartshorn of the smelling bottle—and put a piece as large as a chestnut upon the hot air pipes of a greenhouse, you will see that the salt disappears, and as it passes off into the air of the greenhouse, it is absorbed by the plants and influences their growth in a marked manner.

Two compounds of ammonia that are produced on a large scale by manufacture are considerably employed in Europe and to some extent in this country as fertilizers. These are the sulphate and muriate of ammonia.

In this country we are not much acquainted with the value of nitric acid or nitrates as fertilizers. In England saltpetre or nitrate of potash has been extensively employed as a manure, and now the cheaper nitrate of soda is consumed there in immense quantities for this purpose.

In the following table are given the proportions *per cent* of nitrogen in ammonia and nitric acid and in their compounds which are employed in agriculture.

	<i>per cent. of Nitrogen.</i>
Ammonia, dry. - - - - -	82.4
Nitric acid, " - - - - -	25.9
Sulphate of Ammonia, - - - - -	21.2
Muriate of Ammonia (Sal ammoniac), -	26.1
Nitrate of Potash (Saltpeter), - -	13.8
Nitrate of Soda (Soda saltpeter or Chili saltpeter), - - - - -	16.4

That these compounds of nitrogen produce excellent effects upon crops is shown in a multitude of cases by the records of British Agriculture. In one trial Mr. Pusey, President of the Royal Agricultural Society of England obtained an increase of 7 bushels of barley per acre by an application of 42 lbs. of nitrate of soda. 112 lbs. of nitrate of soda per acre is

an ordinary dressing in Great Britain. This quantity gave Mr. Bishop of Methven Castle, 2 tons 3 cwt. of hay per acre, against 1 ton 1½ cwt. on the undressed land. Mr. Newman of Surrey, obtained with the same amount, 60 bushels of oats, on a field, the undressed portion of which yielded but 40 bushels.

Boussingault has described a long series of experiments which exhibit the effect of nitric acid upon vegetation, in a most striking and instructive manner.



Among others he made the following: Two seeds of a dwarf sunflower, the *Helianthus argophyllus*, were planted in each of three pots, the soil of which, consisting of a mixture of brick-dust and sand, as well as the pots themselves, had been thoroughly freed from all nitrogenous compounds by ignition and washing with distilled water. To the soil of the pot A, see figure, nothing was added save the two seeds, and distilled water, with which all the plants were watered from time to time. With the soil of pot C were incorporated small quantities of phosphate of lime, of ashes of clover and

bicarbonate of potash, in order that the plants growing in it might have an abundant supply of all the mineral matters

they needed. Finally, the soil of pot D received the same mineral matters as pot C, and in addition, a small quantity of nitric acid as nitrate of potash. The seeds were sown on the 5th of July, and on the 30th of September the plants had the relative size and appearance seen in the figures, which are reduced to one-eighth of the natural dimensions.

The results are certainly remarkable: in the second pot B, was produced by the aid of 20 grains of nitrate of potash, a crop weighing 198 times as much as the seed from which it grew. The plants were quite equal to those grown in the rich soil of a garden. D represents a leaf from a garden plant raised from the same seed, and figured here for the purpose of comparison. In the first pot A, the plants weighed but $3\frac{7}{10}$ times, and in the third, C, $4\frac{6}{10}$ times as much as the seed. It is plain that the soil of pot D contained every element requisite for the support of a vigorous vegetation. The contrast of results demonstrates further that nitric acid is a good and of itself a sufficient source of nitrogen.

The largest quantity of nitrogen brought down from the atmosphere annually, in the forms of ammonia and nitric acid, in the experiments of Lawes, Way and Bretschneider, just given, was 11 lbs. This corresponds to 85 lbs. of nitrate of potash, which of itself is an important manuring. It is not enough, however, for ordinary crops, as is shown by the great effects of further applications. We must therefore look lastly to the soil itself, which not only receives nearly uniform supplies of assimilable nitrogen from the atmosphere, but has its own peculiar stores of nitrogen which, though never entirely wanting, vary in quantity to a great degree.

But a dozen years ago it was generally believed that the ammonia of the soil is the natural and proper food of plants as regards a supply of nitrogen. It had indeed long been known that nitrates aid the growth of plants, but Liebig taught that it was probable that nitrates are converted into ammonia in the soil, and, in any case, the main source of nitrogen for vegetation was ammonia. Late investigations demonstrate that, in general, the soil contains a proportion of ammonia no larger than exists in the atmosphere itself, and

indicate with much certainty that nitrates are the chief dependence of the plant for nitrogenous food.

Nitrates of lime, potash, soda, &c., are *formed in the soil*, abundantly under certain conditions. They are freely soluble in water, and hence are washed out of the soil by rain, and passing into drains, springs and rivers, are carried off into the ocean in immense quantities. Thus, according to Boussingault's calculations, based on his analyses, the Rhine daily removes from the soils drained by its tributaries, a quantity of nitric acid equivalent to 220 tons of saltpeter. The Seine daily pours nitrates corresponding to 270 tons of saltpeter into the Atlantic, and the Nile no less than 1100 tons into the Mediterranean.

It has long been known that *nitrification*, i. e. the formation of nitrates, is a process that rapidly proceeds under some circumstances in the soil, indeed the niter of commerce is entirely derived from accumulations that take place in the earth's surface in rainless regions, or during dry weather, or lastly, in sheltered situations.

Boussingault first made an accurate study of the extent and rapidity of this process. In the year 1857 he experimented on a specimen of garden soil, which was kept fallow in a heap under shelter, with frequent slight waterings, so that neither gain nor loss of nitrogen compounds could occur, except through chemical change. Analysis made at various intervals, gave its content of nitric acid, which, calculated in lbs. avoirdupois, for the area of one acre to the depth of 12 inches, were as follows : —

	Lbs. of nitric acid per acre, to depth of one foot.						
5th August	-	-	-	-	-	-	54
17th August	-	-	-	-	-	-	120
2d Sept.	-	-	-	-	-	-	340
17th Sept.	-	-	-	-	-	-	408
2d Oct.	-	-	-	-	-	-	395

In this case, nitrification proceeded very rapidly in the hot August weather, and was not checked until the middle of September, and then, probably, on account of the cold.

We have positive data to the effect that the nitrogen of the

soil, like that of the atmosphere, is for the most part unavailable, directly, to vegetation.

Boussingault, in experiments upon his garden soil already mentioned, found that when it was employed in small quantity, a pint or so, it was scarcely more capable of supporting vegetation than the most barren sand entirely destitute of nitrogen. A number of his trials were made with pots holding 2000 grains of garden soil, which *contained six grains of nitrogen*. In this quantity of soil the crops, in eight experiments with lupins, beans, maize and hemp, amounted when dried to but 3 to 5 times (in one case 8 times, and on the average 4 times,) the weight of the seed. In 38 similar experiments with sand destitute of nitrogen, a crop was obtained, weighing on the average 3 times (in one case 6 times) as much as the seed.

In the three experiments already described, p. 37, the addition to a totally barren soil of three grains of nitrogen (20 grains of nitrate of potash,) made a crop weighing 198 times as much as the seed. It is plain, then, that the garden soil, in the quantity of 2000 grains, failed to produce a good yield, because it could not furnish enough nitrogen to the plants. But, as we said, it contained no less than *six grains of nitrogen*, or twice as much as was employed in producing the large sunflower of pot D, p. 37. Our only explanation of these remarkable facts is to be found in the conclusion that, of the abundant nitrogen of the garden soil, but very little existed in a condition available to plants. It must have been for the most part unassimilable and inert, as is the free nitrogen of the atmosphere. The analysis of the soil, as made at the beginning of the experiments, shows, in fact, that but a trifling proportion of nitrogen was present as ammonia and nitric acid. The soil contained in 100 parts:—

Total nitrogen	-	-	-	-	-	0.26100
Ammonia	-	-	-	-	-	0.00220
Nitric acid	-	-	-	-	-	0.00034

Calculated in lbs. per acre to the depth of 14 inches, we have, in round numbers:—

Nitrogen, 11500 lbs.

Ammonia, 90 “

Nitric acid equal to 780 “ of nitrate of potash.

Of the total nitrogen, but $\frac{1}{130}$ part occurred in the forms of ammonia and nitric acid. This proportion is abundant for field culture. 780 lbs. of nitrate of potash applied as a manuring would satisfy the largest demands of agricultural practice. The soil which was fertile in the garden was barren in pots, because the quantity of it at the disposal of a single plant was far too small to supply it with nitrogen. Boussingault found by actual measurement, that, according to the rules of garden culture practised in his neighborhood, a dwarf bean had at its disposition 65 lbs. of soil, a potato plant 198 lbs., a tobacco plant 480 lbs., and a hop plant 3000 lbs. It could not be expected then that 4 oz. of soil would have much effect on a plant in furnishing it with nitrogen, when but $\frac{1}{130}$ of its nitrogen was available.

Boussingault deems it highly probable that in this garden soil, and in soils generally which have not been recently manured, ammonia and nitric acid are the exclusive feeders of vegetation with nitrogen. Such a view is not indeed absolutely demonstrated, but the experiments alluded to render it in the highest degree probable.

The large share of the nitrogen in the soil is certainly proved to be inert. It exists there in a condition similar to that in which it occurs in peat and in bituminous coal. Peat often contains two or even three per cent. of nitrogen, but this has, in general, very little effect on vegetation, unless the peat has been acted upon by some vigorous chemical agent so that its nitrogen is made to assume a new form. In leather shavings we have an example of a fertilizer exceedingly rich in nitrogen, but acting very slowly as compared with nitrate of soda. When stable manure ferments, or alters by keeping, its nitrogen passes to a great extent into this inert condition, and in fields heavily manured year after year with animal manures, like the garden soil Boussingault operated on, nitrogen accumulates in a form that is of no use directly to plants.

This inert nitrogen may, however, be modified by chemical

action and made capable of feeding vegetation. There is going on perpetually in nature a succession of changes whereby the free gaseous nitrogen of the atmosphere and the inert nitrogen of the soil are passing into the compounds ammonia and nitric acid, while on the other hand ammonia and nitric acid suffer decomposition or alteration, and gaseous nitrogen or inert compounds of this element are formed from them. These opposite processes counterbalance each other on the whole, and preserve equilibrium between the air and the soil. But they do not proceed uniformly on all parts of the earth's surface, nor even on fields that lie contiguous to each other. It may happen that in one soil nitrogen is withdrawn from circulation and rendered for the time useless, and on another it is restored to its function of supporting vegetation. It is circumstances that determine what occurs in any given case. These circumstances it is important to understand, for the ability to control them in many cases may prove of great pecuniary advantage to the farmer.

The late researches of Bretschneider in Silesia are adapted to instruct us upon some of these points. Bretschneider's experiments were made for the purpose of estimating how much ammonia, nitric acid, and nitrogen exist or are formed in the soil, either fallow or occupied with various crops during the period of growth. For this purpose he measured off in the field four plots of ground, each, one square rod* in area, and separated from the others by paths a yard wide. The soil of one plot was dug out to the depth of 12 inches, sifted, and after a board frame 12 inches deep had been fitted to the sides of the excavation, the sifted earth was filled in again. This and another—not sifted—plot were planted to sugar beets, another was sown to vetches, and the fourth to oats.

At the end of April, six accurate and concordant analyses were made of the soil. Afterwards, at five different periods, a cubic foot of soil was taken from each plot, and from the spaces between that bore no vegetation, for determining the amounts of nitric acid, ammonia, and total nitrogen. The

* Measures are Prussian.

results of this analytical work are given in the following tables, being calculated in pounds for the area of an acre, and to the depth of 12 inches (English measures):

TABLE I.

AMOUNT OF AMMONIA.

	Beet plot, sifted soil.	Beet plot.	Vetch plot.	Oat plot.	Vacant plot.
End of April,	59	59	59	59	59
12th June,	15	48	41	32	28
30th June,	12	41	24	40	32
22d July,	9	29	39	22	29
13th August,	8	15	16	11	43
9th September,	0	16	16	7	23

TABLE II.

AMOUNT OF NITRIC ACID.

End of April,	56	56	56	56	56
12th June,	281	270	102	28	106
30th June,	328	442	15	93	318
22d July,	116	89	58	0	43
13th August,	53	6	71	14	81
9th September,	0	0	12	0	0

TABLE III.

TOTAL NITROGEN OF AMMONIA AND NITRIC ACID.

End of April,	63	63	63	63	63
12th June,	84	109	60	33	50
30th June,	95	148	23	57	108
22d July,	37	47	31	18	35
13th August,	21	14	31	13	56
9th September,	0	13	16	6	19

TABLE IV.

TOTAL NITROGEN OF THE SOIL.

End of April,	4652	4652	4652	4652	4652
12th June,	4861	5209	5606	6140	4720
30th June,	4667	5744	5688	5514	4482
22d July,	5398	5485		4724	4924
13th August,	5467	6316	6316	6260	4412
9th September,	5164	4656	6522	5004	4294

From the first Table we gather that the quantity of *ammonia*, which was considerable in the spring, diminished, especially in a porous (sifted) soil until September. In the compact earth of the uncultivated path, its diminution was less rapid and less complete. The amount of nitric acid (nitrates,) on the other hand increased, though not alike in any two cases. It attained its maximum in the hot weather of June, and thence fell off until, at the close of the experiments, it was completely wanting save in a single instance.

The figures in the second Table do not represent the absolute quantities of nitric acid that existed in the soil throughout the period of experiment, but only those amounts that *remained* at the time of taking the samples. What the vegetation took up from the planted plots, what was washed out of the surface soil by rains,* or otherwise removed by chemical change, does not come into the reckoning.

Those plots, the surface soil of which was most occupied by active roots, would naturally lose the most nitrates by the agency of vegetation; hence, not unlikely, the vetch and oat plots contained so little in June. The results upon the beet and vacant ground plots, demonstrate that in that month a rapid *formation of nitrates* took place. It is not, perhaps, impossible that nitrification also proceeded vigorously in the loose soils in July and August, but was not revealed by the analysis, either because the vegetation took it up or heavy rains washed it out from the surface soil. In the brief account of these experiments at hand, no information is furnished on these points. Knop has shown that *moisture* is essential to nitrification, so that it is possible a period of dry weather coming on shortly before the soil was analyzed in July, August and September, had an influence on the results.

We observe further that the nature of the crops influenced the accumulation of nitrates, whether simply because of the different amount of absorbent rootlets produced by them and unequally developed at the given period, as is most probable, or for other reasons, we cannot decide.

* Nitrates may be easily and completely removed from the soil by water, whereas ammonia is chemically retained by good soils.

From the third Table may be gathered some idea of the total quantity of nitrogen that was present in the soil in a form available to crops. Assuming that ammonia and nitric acid chiefly, if not exclusively, supply vegetation with nitrogen, it is seen that the greatest quantity of available nitrogen ascertained to be present at any time in the soil, was 148 lbs. per acre, taken to the depth of one foot. This, as regards nitrogen, corresponds to the following dressings : —

	lbs. per acre.
Saltpeter (nitrate of potash) - - -	1068
Chili saltpeter (nitrate of soda) - -	898
Sulphate of ammonia - - - -	909
Peruvian guano (14 <i>per cent</i> of nitrogen	1057

The experience of British farmers, among whom all the substances above mentioned have been employed, being that 2 to 3 cwt. of any one of them make a large, and 5 cwt. a very large application per acre ; it is plain that in the surface soil of Bretschneider's trials *there was formed during the growing season a large manuring of nitrates in addition to what was actually consumed by the crops.*

Table IV confirms what Boussingault has taught as to the vast stores of nitrogen which may exist in the soil. The amount here is more than *two tons* per acre. We observe further that in none of the *cultivated plots* did this amount at any time fall below this figure ; on the other hand, in most cases it was considerably increased during the period of experiment. In the uncultivated plot, however, the total nitrogen fell off somewhat. This difference may have been due to the root fibrils that, in spite of the utmost care, unavoidably remain in a soil from which growing vegetation is removed.

The regular and great increase of total nitrogen in the vetch plot was certainly due in part to the abundance of leaves that fell from the plants, and covered the surface of the soil. But this nitrogen, as well as that of the standing crops, must have come from the atmosphere, since the soil exhibited no diminution in its content of this element.

We must conclude from the facts before us that ammonia, as *naturally supplied*, is of very trifling importance to vegeta-

tion, and that, consequently, nitrates are the chief natural means of providing nitrogen for crops.

It is of the first importance then, to know the conditions of their formation. These we will briefly recount so far as known :—

1. There must be a *source of nitrogen*. This may be either ammonia, the free nitrogen of the air, or lastly the inert nitrogen of organic matters and of the soil.

2. As nitric acid is a compound of nitrogen with oxygen, the nitrogen must be in circumstances that admit of *its combination with oxygen*. Above all, the presence of the *free oxygen* of the air is indispensable, and the soil must be *porous* so as to admit of æration.

3. W. Knop has demonstrated that the soil must be *moist*. In a soil that is *dry*, as well as in one *saturated with water*, nitrification cannot go on.

4. *A certain temperature* is requisite, the limits of which are not indeed ascertained, but it is well known that nitrates are formed most rapidly and abundantly in tropical climates, and in hot weather.

5. Nitrification does not proceed in the soil except in presence of decaying (oxidizing) *organic matter*. In nearly 40 experiments by Boussingault, on the growth of plants *in soils destitute of organic matter*, there was no appreciable gain of nitrogen, while in his trials with *garden soil*, as well as in Bretschneider's investigations in the field, nitrogen accumulated either in the soil or in both soil and crop.

So far as we can frame a theory of nitrification, it is as follows :—

In many processes of oxidation by free oxygen gas, as it occurs in the atmosphere, a portion of the oxygen is converted into a modified form, having extraordinary chemical activity. If, for example, phosphorus, which is employed in making friction matches, be exposed to moist air in a warm room, it unites rapidly with oxygen, while, in a short time, a gaseous body is produced which has a peculiar unpleasant odor, and which is capable of oxidizing free nitrogen to nitric acid. This substance is called ozone, and Schoenbein, its

discoverer, prepared a considerable quantity of nitrate of potash by simply causing moist, warm air to stream over phosphorus, and then through potash lye for a time. The same conversion of oxygen into ozone is accomplished by electrical discharges, and the formation of nitric acid in the air is undoubtedly due in part to the electrical ozonization of oxygen and its subsequent action on nitrogen. It has been supposed that other oxidations are attended with development of ozone, and it is highly probable that when organic (vegetable or animal) matters decay or oxidize in the soil, ozone is generated which is not recognizable to the chemist, because it expends itself in the conversion of nitrogen into nitric acid. This is the only supposition which serves to explain the necessity that organic matters be present in the soil for the production of nitrates. If this hypothesis be correct, as it is extremely probable, nitrification is a process which accompanies oxidation, and its intensity is heightened by moisture, by presence of organic matters and by elevated temperatures, because these conditions are essential to rapid oxidation.

It is in this way that the *free nitrogen of the air* becomes at once part of a compound adapted to nourish plants, and an ingredient of the soil.

With the oxidation of the organic matters of the soil a part of their nitrogen is converted into nitric acid, when the oxygen is present in sufficient abundance. But to bring the great stores of inert nitrogen that exist in most cultivated soils into immediate use, requires the intervention of another chemical agent.

Lime, it has been asserted, has served to reclaim more land than all other applications together. Its action is complex, but one of its most general effects is doubtless to bring inert nitrogen into an active condition. Any alkali or substance exerting the action of an alkali operates in the same manner. The vigor of the action depends upon the solubility and amount of the material employed. As before remarked, Peat (swamp-muck) contains oftentimes a considerable proportion of nitrogen which in general is quite inert unless subjected to the influence of certain chemical agents. In the summer of

1862, the speaker carried out a series of experiments for the purpose of learning how to make this nitrogen available to vegetation. These experiments were first published in a treatise on "Peat and its Uses as Fertilizer and Fuel," in 1866. They are reproduced here as illustrating in a practical way the action of alkalies on inert nitrogen.

A quantity of peat that had been weathering for some time on the "Beaver Meadow" near New Haven, was allowed to become perfectly air-dry, and was then brought to a fine uniform powder by rubbing through a sieve. The peat thus prepared contained 13.5 per cent. of moisture and 3.4 per cent. of nitrogen.

Twelve quart flower-pots, new from the warehouse, were filled as described below; the trials being made in duplicate:

Pots 1 and 2 contained each 270 grams* of peat.

Pots 3 and 4 contained each 270 grams of peat, mixed with 10 grams of ashes of young grass.

Pots 5 and 6 contained each 270 grams of peat, 10 grams of ashes and 10 grams of carbonate of lime.

Pots 7 and 8 contained each 270 grams of peat, 10 grams of ashes and 10 grams of slaked (hydrate of) lime.

Pots 9 and 10 contained each 270 grams of peat, 10 grams of ashes and 5 grams of lime slaked with strong urine of common salt.

Pots 11 and 12 contained each 270 grams of peat, 10 grams of ashes and 3 grams of the best Peruvian guano.

In each instance the materials were thoroughly mixed together, and so much water was added as served to wet them thoroughly. Five kernels of dwarf maize (pop corn) were planted in each pot, the weight of each planting being carefully ascertained.

The pots were disposed in a glazed case within a cold grapery, by the kindness of Joseph E. Sheffield, Esq., and were watered when needful with pure water. The seeds sprouted duly and developed for the most part into healthy plants.

The plants differed remarkably in the vigor and extent of

* 1 gram=14.5 grains.

their growth and thus served as tests of the feeding power of the soils or media in which they were situated. The guanoed pots enabled making a comparison with a well known fertilizer.

The plants were all allowed to grow for several months and until those best developed had apparently exhausted the food at their disposal and vegetated, not at the expense of the soil or mixture in which their roots were stationed, but at the cost of their own lower leaves as was indicated by the withering away of the latter. The plants were then cut at the surface of the soil and the crops, after drying in the air were weighed with the subjoined results.

VEGETATION EXPERIMENTS IN PEAT COMPOSTS.

Nos.	Medium of growth.	Weight of crops in grams.	Comparative weight of crops, the sum of 1 and 2 taken as unity.	Ratio of weight of crops to weight of seeds, the latter assumed as unity.
1 } 2 }	Peat alone,	1.61 } 2.59 }	1	2½
3 } 4 }	Peat and ashes of grass,	14.19 } 18.25 }		
5 } 6 }	Peat, ashes and carbonate of lime	18.19 } 20.25 }	8	20½
7 } 8 }	Peat, ashes and slacked lime,	21.49 } 20.73 }		
9 } 10 }	Peat, ashes, slacked lime and salt	23.08 } 23.34 }	9	25½
11 } 12 }	Peat, ashes, and Peruvian guano	26.79 } 26.99 }		
			10	28½
			11	30½
			13	35½

The above results are very instructive. Exp's 1 and 2 demonstrate that peat alone is deficient in plant food. In both pots but 4.2 grams of crop were produced, a quantity only two and a half times greater than that of the seeds, which weighed 1.59 grams. The plants were pale in color, slender and attained a height of but about 6 inches.

Exp's 3 and 4 make evident what are some of the deficiencies of the peat. A supply of mineral matters, such as are contained in all plants, being made by the addition of *ashes*, consisting chiefly of phosphates, carbonates and sulphates of lime, magnesia and potash, a crop is realized nearly

eight times greater than in the previous cases ; the yield being 32.44 grams, or $20\frac{1}{2}$ times the weight of the seed. The quantity of ashes added, viz : 10 grams, was capable of supplying every mineral element greatly in excess of the wants of any plant that could be produced in a quart of soil.

The plants in pots 3 and 4 were much stouter than those in 1 and 2, and had a healthy color.

In the experiments 5 to 10 inclusive, is shown the influence of alkaline matters in solving and making available to the plant, the inert nitrogen of the soil. Exp's 5 and 6 make evident that carbonate of lime, though feebly alkaline and slightly soluble, exerts a marked influence in this respect. The ashes employed contained more lime than could be appropriated by the plants and the effect of the carbonate of lime in these trials can not be explained save by its action on the nitrogen of the peat, which the former experiments indicate to be in an inert state. Under the influence of the carbonate of lime, the crop is raised from 32.44 to 38.44 grams or from $20\frac{1}{2}$ to $25\frac{1}{2}$ times the weight of the seed.

In exp's 7 and 8, a more soluble and active agent was employed. The *caustic (slacked) lime* increased the crop from 38.44 to 42.22 grams or from $25\frac{1}{2}$ to $28\frac{1}{2}$ times the weight of the seed. That its effect was not greater is due to the fact that the slacked lime could only act as such for a short time, for it rapidly absorbs carbonic acid from the air and is thereby converted into carbonate.

In exp's 9 and 10, a mixture of lime and salt was employed. This mixture is equivalent to an application of carbonate of soda which is more soluble and therefore more active than the lime. It brings up the yield to 46.42 grams or to $30\frac{1}{2}$ times the weight of the seed.

The efficacy of these applications is only to be properly appreciated by comparing them with some well-known fertilizer. In exp's 11 and 12 this comparison is furnished. Peruvian guano, applied in a large dose, gave a crop but $35\frac{1}{2}$ times the weight of the seed, although it must have left an excess of nearly every element of plant food in the soil.

The last experiments also conclusively demonstrate that in

previous trials it was a limited supply of *nitrogen* which limited the crops, because active nitrogen is the only ingredient furnished by the guano which was not present in ample quantity, in all but the first two experiments.

The mode in which lime or alkalies act upon the inert nitrogen of peat or of the soil is to some extent understood. When peat, the soil, and inert nitrogenous matters that may be employed as fertilizers, as hair, wool, horn, leather-scrap, are heated with lime or other alkali, *ammonia* is copiously developed. The same transformation occurs slowly at ordinary summer temperatures. Boussingault gives the results of some experiments on this point, the details of which we need not repeat, but which demonstrate that ammonia is thus formed in soils containing organic matters.

The action of lime, carbonate of lime or other alkaline fertilizer is, accordingly, to convert inert nitrogen into ammonia. Thus ammonia is either directly absorbed by vegetation or oxidized into nitrates and appropriated by plants in that form.

It has long been known that certain crops are especially aided in their growth by nitrogenous fertilizers while others are comparatively indifferent to them. Thus the cereal grains and grasses are most frequently benefited by applications of Peruvian guano, dung of animals, fish, flesh and blood manures, or other matters rich in nitrogen. On the other hand, clover and turnips flourish best, as a rule, when treated with phosphates and alkaline substances, and are not manured with animal fertilizers so economically as the cereals. It has, in fact, become a rule of practice in some of the best farming districts of England, where systematic rotation of crops is followed, to apply nitrogenous manures to the cereals and phosphates to turnips. Again, it is a fact, that whereas nitrogenous manures are often necessary to produce a good wheat crop, in which, at 30 bu. of grain and 2600 lbs. of straw, there is contained 45 lbs. of nitrogen, a crop of clover may be produced without nitrogenous manure, in which would be taken from the field twice or thrice the above amount of nitrogen, although the period of growth of the two crops is about the same. These facts admit of another expression

viz.: clover though containing two or three times more nitrogen and requiring correspondingly larger supplies of nitrates and ammonia than wheat, *is able to supply itself* much more easily than the latter crop. In parts of the Genesee wheat region, it is the custom to alternate clover with wheat, because the decay of the clover stubble and roots admirably prepares the ground for the last named crop. The same preparation might be had by the more expensive process of dressing with a highly nitrogenous manure, and it is scarcely to be doubted that it is the *nitrogen* gathered by the clover which insures the wheat crop that follows. It thus appears that the plant itself causes the formation in its neighborhood of assimilable compounds of nitrogen, and that some plants excel others in their power of accomplishing this important result.

Late investigations suggest the means of accounting for these facts. It has long been known that in a number of instances in which oxygen is liberated from its combinations at ordinary temperatures, a portion of it appears in the active form of ozone. When water is resolved into its constituent gases oxygen and hydrogen, by galvanism, the oxygen is mixed with ozone. The same is true in the galvanic decomposition of carbonic acid. So also when permanganate of potash (employed for cholera disinfection) or binoxide of barium yield up oxygen in the free state, by acting upon them with sulphuric acid, ozone is simultaneously developed. The leaves of plants are throwing off into the atmosphere, during all the time they are exposed to sunlight, free oxygen gas. All the oxygen which is removed from the air by the breathing of animals, by the burning of fuel, by the rusting of metals, and by the decay (slow combustion) of dead organic matter is replaced by the foliage of living vegetation. The formation of free oxygen is thus a process which takes place on an immense scale and one which ceases in the northern hemisphere on the approach of our winter, only to begin in the southern zones where at that time the summer opens. Its cessation in our longitude when the sun goes down, is simultaneous with its awakening on the opposite side of the globe where at that time the sun rises.

For a number of years it has been regarded as probable that ozone is generated in the act of decomposition which takes place in green foliage under the solar influence, and that the oxygen restored to the air by the decomposition of carbonic acid in the plant, contains an admixture of ozone. During the last year, extended series of observations by Daubeny and Kosmann appear to demonstrate that such is the fact. It is plain that those crops which produce the largest mass of foliage develop the most ozone during their growth. By the action of this ozone the nitrogen that bathes the leaves is converted into nitric acid which in its turn is absorbed by the plant. The foliage of clover, cut green and of root crops, maintains its activity until the time the crop is gathered; the supply of nitrates thus keeps pace with the wants of the plant. In case of grain crops, the functions of the foliage decline as the seed begins to develop and the plant's means of providing itself with assimilable nitrogen fail, although the need for it still exists. Furthermore, the clover cut for hay, leaves behind much more roots and stubble per acre than grain crops, and the clover stubble is twice as rich in nitrogen as the stubble of ripened grain. This is a result of the fact that the clover is cut when in active growth, while the grain is harvested after the roots, stems and leaves have been exhausted of their own juices to meet the demands of the seed.

Whatever may be the value of our explanations, the fact is not to be denied that the soil is enriched in nitrogen by the culture of large leaved plants which are harvested while in active growth and leave a considerable proportion of roots, leaves or stubble, on the field. On the other hand, the field is impoverished in nitrogen when grain crops are raised upon it.

A few words will suffice for the application of the facts and principles that have been set forth. The considerations that have been presented to your notice argue strongly for the view that the aeration of the soil by drainage and tillage, the judicious succession of crops, and the properly combined or alternated employment of organic fertilizers like peat or swamp muck, straw, &c., and of alkaline applications as lime and shell marl, may suffice to supply the soil with abundance of

available nitrogen without the necessity of having recourse to imported fertilizers. In fact, experience has a thousand times demonstrated the correctness of this view. The scientific studies which we have detailed are not needful to establish its truth, but first lead us to comprehend its truth and give us the immense advantage always to be derived from great principles of which we have a clear conception and in which we are able to put implicit faith.

After Prof. Johnson's lecture, the Board adjourned until Wednesday, January 9th, at 9 A. M., at the New Haven Hotel.

The Board met at 9 A. M., Jan. 9th, at the New Haven Hotel.

A committee of publication was appointed, consisting of His Excellency, Gov. J. R. Hawley, and Messrs. Johnson, Collins and Gold.

The question being presented by the committee on topics for discussion, "How may our Agricultural Societies be rendered more efficient and useful," on motion of Mr. Willard it was resolved that a committee be appointed to prepare resolutions and suggestions upon the subject.

Messrs. Perkins, Camp, Hyde, Stewart, Collins and Gold, were appointed as this committee.

Present, His Excellency, Gov. J. R. Hawley, and Messrs. Hyde, Stewart, Camp, Willard, Perkins, Collins, Brewster, Robinson, Johnson, Yeomans and Gold.

Board adjourned to 4 P. M.

WEDNESDAY, 4 P. M., JANUARY 9th.

"DISCUSSION ON DRAINAGE."

The Discussion on Drainage was commenced by the reading of a letter by the Secretary, from John Johnston of Geneva, in reply to the circular of the Board soliciting information upon the subject to be discussed. Mr. Gold referred to Mr.

Johnston as a "practical working man, who commenced draining years ago, and has carried it out upon his farm to successful results, making it pay well, and therefore is a man whose opinions are valuable."

This letter is given elsewhere among the replies to the circular asking information on Drainage.

Professor JOHNSON remarked that "Thorough Drainage," which implies, establishing a permanent system of covered drains, so arranged as to carry off the surplus water of an entire field or farm without interfering with the operations of tillage, is of the utmost importance in agriculture. A field drained in this sense is penetrated by a series of water channels made of tile or stone, which are from 30 to 60 feet apart, 3 to 5 feet deep, and usually run parallel to each other down the slope of the land, or are graded to some point or points of discharge.

This system of drainage, though practised in one instance at least by the monks of the middle ages, was re-invented and widely introduced into use in Great Britain, by James Smith, of Deanston, Scotland. Mr. Smith was a thriving manufacturer, and the proprietor of a heavy-land farm of considerable extent. His plan of draining, applied to this farm, wonderfully improved its productiveness and ease of working. His example was followed on all sides, and it was shortly found that not only heavy clays, but land of an opposite character, were in many cases vastly benefited by this mode of improvement.

In a comparatively short time, thorough drainage became "the rage" in Great Britain, and many good farmers were in the habit of declaring that draining is good on all soils, is in fact the first enterprise to be engaged in for the improvement of a farm. Even tenants, on long leases, as for twenty years, undertook to drain their holdings at their own expense, and in certain authentic instances, found the heavy outlay returned within three or four years, by the increased yield of the land and the ease of working it.

The experience of the British farmer does not, however, apply in full force in this country. Our climate is very

different from that of the British Isles. During a summer spent at Manchester, England, the speaker scarcely knew a day during the months of June and July when it did not rain. At the show of the Royal Agricultural Society, held at Carlisle, in 1855, the grounds were drenched with rain during nearly the whole time of exhibition, and in view of such a contingency every thing was provided with substantial shelter. In our drier climate the advantages of thorough drainage are not so universal ; nevertheless, there are thousands upon thousands of acres in New England and the Middle States, which need draining, and which, were they drained, would be doubled in their productiveness.

All soils which are clayey, heavy to work, which dry away to stony clods when plowed wet, and lighter soils situated on a springy bottom, as shown by their yield of coarse grasses, are benefited by drainage. In many cases, a single drain will suffice to renovate such fields. In others, a system of drains is the most effectual and most economical remedy. Agricultural plants will not grow with vigor, and cannot be cultivated profitably on a soil which is with difficulty penetrated by their roots. A soil which is tenacious, like clay, or which, at a little depth, is permanently wet, or is wet for several weeks after seeds are sown, is for these reasons fatal to good crops. Such a soil can become highly productive only after the hard bottom is broken up, and the excess of water let off. The first essentials of a good soil are, uniform porosity and uniform moistness, without wetness to a considerable depth. Such conditions lie equally removed from the extremes of saturation and imperviousness that occur in clay, and those of looseness of texture and aridity, exhibited by coarse sand and sandy gravel.

From time out of mind, it has been the custom in nearly all Europe to "ridge up" the soil into narrow lands. This practice was adopted to relieve the soils of too much surface water, and served as a rough and superficial drainage. It is said that James Smith, observing the fact that grain stood drought better on the crests of ridges than in the depressions, was thereby first led to the reflections which resulted in the

system of thorough draining. If we suppose that water stands on a level throughout a field, and that the soil is ridged, so that at the highest points, the surface is 18 inches, and in the dead furrows is but 6 inches above the bottom water, it is plain that in the ditches the roots of the crop have a much less mass of earth to occupy than on the ridges. When protracted drought supervenes, the surface dries away equally, and to nearly an equal depth, over the whole field. The plants are supplied with moisture and with nutriment by those roots alone which are situated below the line of surface dryness. If the surface is dried out to the depth of 3 inches, the plants whose roots occupy but 6 inches of soil would probably be destroyed, but those occupying 18 inches would survive and continue to grow. The effect of draining a wet field is to deepen the soil, or that portion of it accessible to the roots of crops. It, in reality, makes a new farm under the old one, makes more land to the acre.

Removing the water from the sub-soil is a step that cannot fail to be followed by a train of changes the most vital to the productiveness of the land. The surface water, instead of standing on the ground to kill vegetation, or running off in streams, wasting away the earth and exposing the roots of plants, percolates quickly through the soil, leaving the latter moist but not wet, down to near the level of the drains. Air follows the water and warmth follows the air. In a clay, during dry weather, cracks begin at the drains, from the shrinkage of the drying earth, which extend laterally, until the whole surface soil is rifted with crevices. The next rainfall runs off before the soil can become so soaked as to swell enough to obliterate these crevices. In this way the heaviest clays acquire within a few years the permeability and porosity of a loam. The aeration of the soil, thus made possible, acts in the stead of and to the same effect as manure. The plant-food, before useless to vegetation, becomes active. Inert nitrogen is converted into nitrates. Manure on wet soils is of little use. On heavy soils, well drained, but little is required to produce large crops.

Drainage accomplishes a great and important saving of

time. Heavy loams in a New England climate, though well adapted for crops when sufficiently rid of the water with which they are saturated in the spring time, come into a condition suitable for working so late in the season that the crops they sustain often do not mature before they are damaged or destroyed by autumn frosts. Drainage renders them proper for tillage a number of days earlier, and thus in many cases ensures the crop.

Observations, made extensively throughout the kingdom of Prussia, prove that in the spring, snow melts away on an average, eight days earlier upon drained than upon undrained land, and the drained soil is ready for plowing from two to four weeks earlier than the undrained. In Scotland, statistics show that the harvests are from ten to fourteen days earlier than before drainage was employed.

Drainage thus operates with equal efficacy against two of the greatest evils which the farmer is called upon to encounter, viz, excess of wet and drought. Drought, however, is prevented only upon soils that have sufficient absorbent power for moisture, or in climates which are favored with a fairly regular rain-fall. The coarse sand of the New Haven plain suffers from drought, although it is drained naturally, in the most effective manner, by a gravelly sub-soil. But a soil that is in a state of fine division, of a loamy or clayey character, is not altogether dependent upon rain or dew for its supplies of moisture. If a quantity of such a soil be dried as thoroughly as possible, at a high temperature, in an oven, for example, and then placed upon the pan of a balance and counterpoised, it will be found to grow heavier on exposure to the air, and small weights must be added for a number of hours to balance the moisture which it takes up from the air, which in quantity may amount to from 2 to 5 per cent. A loamy soil, easily penetrable by the atmosphere to a great depth, may absorb a much larger quantity of water, may even condense it to a liquid. According to trustworthy observations made at Hinxworth, England, in 1857, on two occasions in March and April of that year, a series of drains discharged a largely increased amount of water, although no rain-fall occurred.

In answer to a question as to the depth of drains, Professor JOHNSON remarked, the deeper the better, within certain limits, limits to be determined by circumstances, and especially by cost. Ordinarily, 3 to 4 feet is the proper depth on land of even surface. It may be needful to go down 10 feet for some distance, in order to secure a fall, or outlet. Less than 3 feet is not to be advised.

In reply to the inquiry—what is the effect of rain upon land—Professor JOHNSON said: The annual rain-fall brings down upon the surface from the atmosphere a considerable quantity of ammonia and nitric acid. The accordent investigations made by Lawes, Gilbert, and Way, in England, and by Bretschneider, in Silesia, show that for every acre of surface there is brought down some 8 to 9 pounds of ammonia, and 3 pounds of nitric acid. This natural manuring corresponds to about 9 pounds of assimilable nitrogen, the quantity furnished by 65 pounds of Peruvian guano. If the soil be impervious, so that a large share of the water flows over the surface, this top-dressing is lost to a large extent. If by draining the field is converted into a filter, through which the water percolates, it gives up most of the ammonia to the soil, and flows off from the drains, nearly altogether deprived of this substance.

The action of air and moisture in coöperation is to disintegrate the soil. By their conjoint action, the soil has been in fact, for the most part, formed from the rocks which underlie or are mingled with it. In the absence of air, the effect of saturation in the stagnant or motionless water, is the opposite. Under such conditions soil tends to revert to rock. The sandstone of the Connecticut Valley was once soil. The tracks of the feet of reptiles that ages ago walked on the shores of New England rivers or lakes, and the impressions of rain-drops that fell at the same period of the earth's history, are preserved to us in the material that then was mud, but now, is the quarried rock of Portland, Greenfield, and other places on the Connecticut River. The process of rock-making is going on extensively in the bed of the ocean, in our day. It goes on in peat beds, where "moor bed pan," as it is called

in Great Britain, forms an impervious bottom to the bog. Under the plow-sole, in wet land, a similar cementing of the soil takes place. The bottom of many a farm is rock, or the next thing to it, which drainage, by letting in air, would convert into soil, and many a farm is turning into rock because the water can find no ready channels of escape.

Professor BREWER remarked that the same soils which require irrigation may demand drainage. This has been done. By drainage the soil is mellowed. By irrigation certain chemical changes favorable to the plant are brought about, and hence, then, two agencies may work together for the good of the plant. Draining is especially applicable in clayey soils and for times of drought, and the most profitable depth is about three feet.

Dr. RIGGS of Hartford, said that the subject of irrigation in connection with draining had been overlooked. We have rain at certain seasons of the year, and then we are without it. In these seasons of drought tile draining will undoubtedly make the crops feel the drought less than if they were not drained. But no farm should be underdrained without at the same time it is irrigated, in cases where it is convenient to turn the water in a neighboring brook over the surface of the land. We have examples around us where this manner of irrigation is successfully done, where a swamp near by, or a spring issuing from it, furnishes water enough for the supply of the farm; running over a hill-side and tapped at different places, supplying all parts of the farm in its course. Now when we put down tile-drains we make underneath the ground *new hill-sides* for the water to pour down, as it runs from one drain and empties into another.

In this country we can use irrigation with draining to advantage. In England they do not so much need it as we do here. Their object is to get rid of water, for the fogs and rain there are much more abundant than here.

Dr. RIGGS remarked that he had a peat-bog he intended to drain, say about 15 acres. He has run a rod twenty feet deep into this peat-bed before he touched bottom. He intends to surround this with a drain of five feet, and put in tile of eight

inches, keeping out the water from slopes above, and centering upon this plot of ground. We have plenty of just such peat marshes all over this State, where it would pay to try this experiment of underdraining without letting them go into the hands of Wall Street speculators, to cut the throats of our neighbors.

What we want are bona fide operations. It is a pity that so many joint stock companies are formed merely for the purpose of enriching the few. What is especially desired is that money may be loaned to our small farmers,—to those who now can scarcely make both ends meet. Even if he pay his seven per cent. interest for putting in his tiles and draining his land, the profits on his work will soon pay him for his trouble.

Dr. RIGGS remarked upon the results of draining his own land, and said that in one case, upon one field which produced nothing but skunk cabbages and bulrushes, tiles were put down from $2\frac{1}{2}$ to 3 feet deep, and these connected with a main drain 4 feet deep. The profits on this piece of land where nothing but skunk cabbages and bulrushes grew, was seen in the good corn, turnips, and other vegetables that flourished there after it had been successfully drained. As a general rule, the depth of drains should not be less than three feet.

The question was asked about the effect of tiles on the Hard Pan, when

Professor BREWER remarked that Hard Pan breaks up by letting the air through it, following the water. It makes a new and deeper soil.

The Professor spoke concerning a rapid method of draining practiced upon the farm where he resided when a boy, which he recommended. It was this: use a plow and yoke of oxen first, making a drain of about eight inches in depth; follow with the common or sub-soil plow in the same furrow, throwing out the loosened dirt with shovels. In this way you can make your ditches pretty fast and cheaply. The bottom, of course, will need to be finished by hand, but there is great economy in using animal power as far as possible.

Mr. CLIFT said he had made a very successful experiment in the month of November, 1865. It was made upon a poor piece of marsh land not yielding more than two or three tons of salt marsh hay, which has, since the experiment was made, yielded thirteen tons and upwards. This piece of marsh land was where the salt water had made an irruption, and had left a valuable compost of marine vegetation and debris.

After surface-draining had been performed, timothy and red top and clover had been put in. The second season a very good crop was obtained. Around the edge of this piece of marsh, the upland near by was also drained, and after surface-draining, tiles were put down where water stood nearly all the spring with no yield but skunk cabbages. Drains were put down two feet in depth, and oats, cabbages, pease (a nice crop), were obtained. As to the depth of drains, Mr. Clift thought that to dig them three and one half feet in depth is economy. In his experience with this depth, vegetation had been more luxuriant.

Mr. T. S. GOLD remarked that in draining he had used no tiles, but only stones. As an illustration of what he had done, he gave one case as follows: He had three acres with a southern slope, yet so saturated with water that the produce was worthless. It bore little except sedges, rushes, and flowering plantain. It would freeze very little in winter, and was soft and wet most of the summer. There was not sufficient water to run off, but it rose from below so as to keep the ground saturated. The soil on top was black muck, but at the depth of about one foot the hardest kind of hard-pan. One main ditch, about thirty rods in length, with the necessary branches, had rendered it so dry that it is mowed with a machine. It was plowed, cropped with buckwheat and oats, and is now in grass, yielding about one and a half tons per acre of timothy, red top and clover. No more manure has been put on than would be made by the crops, so that the whole improvement is due to the draining and tillage.

In the driest part of the year, the water ceases to run, and woodchucks work in the drains, and this lets in surface water when the rains come on, which has caused some trouble, but

otherwise the drains work well. That woodchucks can live there at all, shows the altered condition of the land.

Mr. GOLD remarked that irrigation and drainage were often successfully united. The water from these drains is used with advantage in irrigating the land below. The same water that stagnant, was fatal to vegetation, flowing over the surface, operated very beneficially.

Mr. YEOMANS of Columbia, said that thirteen years ago he ploughed up a piece of wet land, and planted corn the next year, where the water had stood the year before. In a neighboring lot not one rod from this land which had been improved in this way, was a piece of ground which had received no improvement, and which bore as Mr. Yeomans' had done, sour grass, and was in every respect as his was.

Mr. YEOMANS remarked that in the first two years he was paid in his crop of grass, and perhaps he might say also in his crop of corn.

These discussions were finished at about 6 P. M., and the Convention adjourned to 7 P. M., to listen to the first Lecture of Professor W. H. BREWER, upon the "Diseases of Plants caused by Fungi," which follows.

ON THE "DISEASES OF PLANTS CAUSED BY FUNGI."

You are all familiar with the ordinary phenomena of vegetable growth. That the ordinary plants seen are green, that they derive their nourishment from the soil and air, that the water is drank in from the soil, bringing with it in solution various needed substances, that air is breathed in by the leaves, and that under the influence of the light and heat of the sun the elements of the food are elaborated and assimilated. You all know that the beginning of such plants, is in a seed.

In the seed of an ordinary squash, or bean, we find the rudiments of a new plant, an embryo, the rudimentary root and leaves. If we place this seed in a moist soil, with the right conditions of moisture and warmth, it swells, the germ begins to grow, goes through its course, first the leaves, then

the flowers, then the seeds which in turn contain the embryos of future plants of the same kind.

Now, such plants are infested with others which live upon them, of entirely different structure and nature, parasitic plants, which suck their juices, change their substance, or injure them in one way or another, producing some of the well known *diseases* of plants, for plants, like animals, are afflicted with diseases.

The farmer can easily study the growth and structure of the ordinary plants he cultivates, but not so with these minuter forms that are parasitic upon them. These are mostly microscopic in size, and require expensive and powerful microscopes for their study, and moreover much time, but during the last few years, naturalists have devoted much time to them, and I propose in these two lectures to give you some of the conclusions arrived at by scientific students in this vast field, that farmers may turn these labors to their profit and advantage. For the modern farmer must turn to his account all the aids that modern science can give.

You are all aware that plants are composed of *cells*, and not only plants, but all living beings, no matter how large or how small. And let us not confound the cells of plants with the larger pores we see so easily with the naked eye. These are sap vessels, or channels for the juices of the plants, or for air, but not the ultimate cells, which are generally too small to be seen with the naked eye. The pores are generally tubes, or channels, surrounded by the cells, which are built up around them. The cells are always closed sacs, little bags, as it were. They may be round, or elongated, or very long-like tubes, closed at both ends, or angular, or almost any shape, but they are at first always closed. If they begin round, if they are very numerous, they press against each other, and thus flatten each others sides. These little sacs are hollow, and have two or more coats or walls, lying close together so as to appear as but one, the inner being the thinnest, and lying close against the outer. It is as if we had a bag of coarse cloth, lined with cloth of a finer fabric.

During growth, these cells or sacs are filled with fluid, the

sap of the plants, and with little grains floating in it. The fluid passes easily through the walls, although we can see no openings, as water will pass through ordinary cloth.

As the plants grow, the growing, living cells increase, somewhat in size, then divide, an old cell making two or more new ones. In this way all living beings increase in size, the fluids circulating through their walls, and by contact with them are changed in their chemical composition, by some mysterious process.

In most cells, the growth takes place by the cell growing larger, then the inner wall at some point separates from the outer on the opposite sides, and projects inwards, and finally forms a partition through the cell, thus making two, or it may be more. We must continually bear in mind, that they continue closed during the earlier periods of growth, and that the fluids circulate through the walls, although the best microscopes cannot show any holes in them, and thus the chemical changes in the plant go on in contact with the living walls, or in their cavities. In some plants starch, oil, and other products, are thus produced within this little closed prison.

Dead chemical substances, in contact with these living cells, may form compounds that cannot be produced in any other way. It is in them that the so-called *Vital Principle*, or *Vital Force*, dwells, that mysterious power which has had such a variety of names bestowed upon it, but of which we as yet know so little, but which we know is essential to the growth of living things, and the production of the myriad organic compounds which are formed in the living plant or animal.

Now, as I have said, the beginning of a new plant is the embryo in the seed, but the beginning of the embryo is a single cell. The life of the plant begins with the seed, the life of the seed begins with a single cell within the proper organs of the parent plant; that is, of the higher plants, those with which you are familiar.

But there is a great class of plants which have no *seeds* in the sense in which I have used that word, but whose growth

begins directly from a single cell, of peculiar structure, which we call a *spore*, and the plants produced we call *flowerless plants*, as they produce neither flowers nor seeds. They vary greatly in their size and characters, some are large, many are microscopic, while some consist of but a single cell.

The green coating that we see on our brick walls and pavements in wet weather, the red snow of the arctic regions, are composed of these simple plants, in which a single cell may constitute an entire plant. They may never go farther in their growth than one cell; this increases and divides into other cells, each of which is a new plant. These may dry up and be blown away by the wind, to revive again when they fall under the right conditions. Others are a chain of cells, attached end to end. Of such are the *confervæ*, or frog spawn of our pools, and many kinds of mildew.

One division or family of these flowerless plants we call *Fungi*, and it is to this class that I will now direct your attention. They are produced from *spores*, and the different species vary much in size, from the largest mushrooms and puff-balls to the minute microscopic plants that I will describe. A puff-ball is a familiar example of the larger, the dust or smoke that puffs out when it is crushed, is a multitude of *spores*, so fine that each one is invisible to the naked eye, but the many appear like smoke in the air, yet each of these may grow and produce new puff-balls, like the parent plant.

This family of plants have certain important characters common to all its species.

They are not dependent on the light, but most of them may grow in the dark; puff-balls and mushrooms grow in the night; some species grow in caves and mines where the light never enters. They never purify the air by abstracting its carbonic acid, and decomposing it, giving off the oxygen; on the other hand, they absorb oxygen and give off carbonic acid. Ordinary plants live on the dead matter in the soil and air, and out of it build up their living tissues.

Fungi, on the contrary, live on some substance that has lived before, it may be decaying animal or vegetable matter, it may be living things, but in all cases they cause more or

less decomposition of the substance upon which they grow; if already dead they generally hasten its decay, if on a living being, they generally injure the part they live on.

You see examples of both of them very often. Ordinary *mushrooms* grow upon decaying manure and hasten its decay; other forms grow upon old logs and help to rot them. Dry-rot in timber is caused entirely by such a fungus, and I might multiply examples.

I have described the growth of a plant from the seed, let us now notice the growth of a fungus from a spore. As I have said, these spores are *very small*, a single cell. We will suppose it round, which is a common form; of course, all the process must be watched with a powerful microscope. If we place some of these spores upon a moistened slip of glass, and keep the glass moist and warm, we may study the development. First, moisture is absorbed, then this cell begins to swell on one side, the swelling increases at that point, this finally pushes out into a tube, which increases in size and length, according to the species; it may then branch, in fact, the tube is the early stage of the new plant, and if in proper condition, answers the purpose of root, takes up its nourishment if it be present, and the plant continues its growth, assuming the form characteristic of the species. (Illustrated by sketches on the black board.)

You now understand the relations between the *seed* and the *spores*, the relation is similar to that we see in the reproductive plan in different animals; one may produce an egg in which a certain development takes place after its separation from the parent, but which ultimately produces a being of the same kind; another may produce its young alive; the form was first developed within the parent, the same as the embryo is formed within the seed before it leaves the parent plant.

After this long introduction you are prepared to understand what I mean by spores germinating, and the facts I shall use. Bear in mind that fungi cause certain chemical changes in the substance upon which they feed; the higher plants, that grow upon the *soil*, do not thus materially change the soil; they

only charge to any great extent the substances that come within them, but fungi cause changes in the substance they grow on or in, and come in contact with. Not only is this so of the larger mushrooms, toadstools, puff-balls, and similar familiar forms, but there are thousands of species which are microscopic in size, which produce the same effects, and follow the same general laws of growth, some like the various forms of mould, growing on dead organic matter and rotting it, others on living things, causing blights, rusts, mildews, smuts, and other diseases known under a variety of names.

Now how do these kill or cause disease in plants?

I will first illustrate by a familiar example on organic matter already dead, and then pass to the living.

If we take pure sugar and dissolve it in pure water, and carefully keep it pure, even though it may be in contact with the air, it will remain sweet almost any length of time; it undergoes no change; we may evaporate the water and obtain the sugar again pure. But let us place a little *yeast* in the solution, no matter how small a portion. This yeast, if good, contains living cells. These are minute plants, generally classed with the fungi. These cells grow and rapidly increase in number. As they grow, oxygen from the air is absorbed, carbonic acid is given off, and the sugar is all changed to alcohol or vinegar by their action. We may now evaporate the water but get no sugar, it has all been changed. If we boil the yeast, to kill these cells, we stop this fermentation, because we stop their growth. Or we may stop the fermentation if we kill these cells, these minute plants, in any other way; by poisons for instance. The chemical change only takes place in the solution in contact with these *living* cells.

The same thing takes place with all kinds of mold; they rot, or change the substance they flourish upon, for mold is a fungus vegetation. The rotting of timber is caused in the same way by similar fungi, and all methods for the preservation of timber from decay, depend more or less upon the prevention of such fungus growth. We char it, or cover it with paint or tar, to keep out the spores, or soak it in chemicals and poisons to kill them and prevent their growth.

Now, as I have said, certain species of fungi flourish on *living* plants, and when they do, they always cause more or less decay of the parts they come in contact with. They sometimes rot the cells of the plant that support them, at others they change its juices, as the sugar solution was changed by yeast. This causes a multitude of *diseases* in plants, and I propose to notice in the remainder of this, and in the next lecture, some of those produced upon our cultivated crops.

One of the most familiar of these is known as *smut*, by American farmers. In wheat this is most familiar with us. During growth the plants look healthy, the heads grow large, but as the wheat ripens, we find the grains slightly larger than if sound ; and instead of containing starch as they should, are filled with a black substance, like lampblack. As it blackens whatever it touches it has received the familiar name of *Smut*, in this country. The English farmers call it Bunt, the French Charbon, the Germans Brant.

This is caused by a fungus which grows within the grain, uses up its substance, and nearly fills it with its black spores. The spores may enter the wheat plant very young, be sown with the grain, and perhaps pass into the circulation in some way, to appear in the seed when that develops. We see from these diagrams the various phases of the disease. The first is a healthy ovule of wheat, just after flowering. If this is infected by a spore of smut, it changes shape somewhat, becomes darker at the base, and a little net-work like mold invests the pistils. The fungus develops then within the kernel or grain, filling it, growing with the ripening of the wheat plant, until at harvest, when the wheat is ripe, the fungus has completed its growth. If then the kernel be examined, it will be found to be filled with the black, ripened spores, and the withered plants of the mycelium of the fungus, the latter the most abundant in the centre of the kernel. If one grain in a head is affected, all generally are, but this is not universally the case.

When the wheat is threshed, the skin is broken, and the fungus is scattered as a black dust, each particle of which is a spore, to infest the next years crop.

This disease may but slightly injure the crop, or it may be very extensive, destroying one-fourth, one-half, or even more. It flourishes in wet and in dry seasons, appears to be comparatively independent of the weather, and affects the crop upon both low and high lands, but commonly is worse on the latter. It only affects the grains attacked, those that escape are not injured. It varies in destructiveness in different years, and in different localities the same year.

Now how does this smut continue from year to year, and how may it be obviated or prevented?

The smut spores adhere to the wheat, are sown with the seed, and thus enter the plant. We can infect plants artificially by rolling the seed grains in smut before sowing. The spores are exceedingly minute, some authors state their size as so very small that it would require eight millions to cover a square inch, or each is about one-twenty-eight hundredth of an inch in diameter. It is difficult to comprehend such minuteness. They are as much smaller than a grain of wheat as that is smaller than a small house, hence they pass readily into the vessels of the plant. Were you to string them like beads around a hair, the contrast would be like a string of beads about the neck of a child, so small are they. It seems probable that they pass into the circulation of the plant, and finally develop in the seed, but however that may be, the spores are sown with the seed wheat, and if we kill them before sowing, we may save the wheat from its ravages. Now there are several substances that will kill the spores, which do not injure the germinating power of the wheat itself.

About two hundred years ago a vessel laden with wheat sank in one of the harbors of England. The wheat was rendered unfit for food by the salt water, so was used as seed wheat, and the crop the next year that was produced from this seed escaped the ravages of the smut, while crops from other seed, in that vicinity were injured. From that time, soaking seed wheat in salt brine has been more or less used as a remedy, and is pretty effectual. The most common way is to soak the wheat in cold, strong brine, a short time, then drain out the superfluous liquor, and sow in that state, or else first

roll it in lime to dry it. The brine must not be hot, or it destroys the vitality of the wheat. The refuse brine from meat is extensively used for this purpose and it answers well. It is probable also that the salt acts well on the young plant, and if rolled in lime, it is certainly thus benefited.

Brine, however, is not the only remedy, but a weak solution of blue vitriol, or *sulphate of copper* is preferred by some farmers. This is largely used in the southern states, and during the late blockade it brought enormous prices for this purpose. Even five dollars per pound was paid for it, for this use, and farmers could afford to use it even at that price.

It is not the *lime* that effects the cure, as some suppose. The following experiment mentioned in an agricultural paper last year, is conclusive. Mr. C. W. Howell, of North Carolina, sowed one hundred and twenty acres of wheat.

The seed used on forty acres was soaked over night in strong brine, (the refuse from salt pork,) and then thoroughly mixed with slacked lime by shoveling over on the barn floor. The next harvest, this had no smut.

For another forty acres the brine was diluted with an equal amount of water, and then treated as before. In this there was some smut.

For the remaining forty acres, the seed wheat was soaked in *water* and then thoroughly limed, like the rest. This was badly smutted at the next harvest.

The strong brine had killed all the spores of the smut in the seed, the weak brine a part, the lime alone had failed.

In localities where wheat is liable to smut, it is well to always soak the seed in brine, or weak solution of blue vitriol. But if these precautions are neglected, and the crop is partially destroyed by smut, then, in harvesting, let the wheat stand until fully ripe, that the smutted grains may well mature so as to be entirely broken by threshing, and thus be separated from the sound wheat.

Nearly all of our grains are more or less liable to similar diseases in the seed, caused by fungus, but with the exception of rye, the damage is seldom very considerable, at least in this country. These fungi are specifically distinct, one species for

wheat, another for oats, another for corn, &c. I will not trouble you with their long Latin names, by which they are known to botanists. Another well known example of such disease is in the *ergot* or *spurred rye*. In this case, the kernel increases enormously in size, and is hard when dry, and is very poisonous.

Many cases are on record, where it has not been well separated from the grain but passed into the flour in sufficient quantities to produce the most horrible diseases and painful death. Sores break out, gangrene occurs, and the victim dies a miserable death.

Many species of fungus are poisonous, especially the molds. Cases often occur where families are poisoned by eating bread from moldy flour. And if this is aggravated by ergot in the flour, originally, then the case is much worse:

A case is recorded in England, where a whole family were so affected that they lost their limbs by gangrene; they literally rotted off before the death of the victims. And not a few such cases have happened in Europe, where rye forms a larger element in the food of the people than it does here.

There is an idea prevalent among farmers that certain diseases of cattle are caused by the spurred grains of certain grasses, which are analogous in their origin to spurred rye. I know of no proof that this causes such diseases, but certain it is that many practical men hold the opinion, and when any such idea is wide-spread among practical men, we may expect to find some foundation at the bottom of it.

Another class of diseases caused by Parasitic Fungi, is known as *Rust*. This acts in a very different way. The smuts affect the seeds only, but rusts affect the stalks and leaves, and through these, the yield of the crop. As the different grain plants have their parasitic enemies which prey upon their seeds, so too they have each their rusts, preying upon other organs, and even in the same plant, we may find it infested by more than one species of parasite.

We will consider the common wheat rust as an example, and one of the most destructive of that class in this country.

When the wheat is growing, we find before its ripening,

especially if the weather be close and damp, dark or rusty specks appearing upon the stalks and leaves, often in great numbers. A few may be seen most any year, but in wet years the effect is worse, in dry seasons the destruction is less. If we carefully examine the wheat and its parasite during their development, we will first find discolored patches in and just beneath the cuticle, which soon bursts, and the ruptured edges are rolled back, and a mass of fine threads are thrust out, each of which soon is crowned by a small knob, which contains about two spores. The disease then spreads rapidly, and if the weather is favorable, thousands appear upon each plant, on the leaves and stalk. The fungus has its *mycelium* or spawn growing in the tissues of wheat plants, only the fruit-bearing threads coming through the cuticle. The sap is changed by this fungus, the seeds do not develop, and at harvest the seeds are shrivelled or shrunken, they have not been well filled with starch, as the healthy, plump grain, should be. From the fact that grain growing on rich, mucky soil, or where there has been excessive manuring, is often more rusted than in the less luxuriant parts of the same field, many men have come to believe that rust is caused by an excess of sap bursting the sap vessels and flowing out and drying on the outside, producing the spots. I need not say that this is entirely wrong; a good microscope will dispel any such theory.

Perhaps the strangest part of the history of these fungi is that they often assume very different forms in the different periods of their growth, and may live on different plants. You know that it is a very common opinion that our common Barberry bushes blight wheat. This opinion has been held by farmers in various countries and for centuries. Some persons have attempted to account for it by supposing that the pollen from the flowers of the barberry blighted the flowers of the wheat. But nearly all scientific men denied the fact in toto, and pronounced it a mere whim, without any foundation whatever. But Dr. Barry has recently proved by the most careful investigation, that there was a foundation of fact in the idea. The truth is, the same fungus that infests wheat

and rusts it, also lives upon the barberry, and may spread from it to the wheat, but while on the barberry, it looks so unlike its development on the wheat plant, that it had heretofore been mistaken by botanists for an entirely different fungus.

For rust, there is no remedy; as it is not sown with the wheat, all treatment of the seed-wheat is useless. It is so largely dependent on the condition of the weather, that its ravages are mostly beyond our control. It is found, however, that some varieties of wheat suffer less than others; generally those with the hardest stalks suffer least. It seems that the firm cuticle of some varieties resists to some extent the ravages of the parasite. Some farmers think that liming the wheat decreases the liability to rust, but does not prevent it altogether. It probably acts by making the stalk firmer.

Should wheat be attacked, there is no remedy, but we may alleviate some of its effects by cutting the wheat early. If badly rusted, the longer it stands, the more the grain becomes shrunk, the substance that should go to the formation of starch in the grain, is destroyed by the parasite. Of the other kinds of rust, infesting other crops, I cannot here speak, from lack of time.

Of these fungi, you will perceive that for some we have a remedy, for others, as yet none, we must trust to the future, hoping that as we now know so well the *nature* of the disease, that a remedy may be discovered.

DISCUSSION UPON PROFESSOR BREWER'S FIRST LECTURE UPON FUNGI.

Mr. T. S. GOLD asked what time is necessary to bring these fungi to maturity?

Professor BREWER answered: The time varies. Some come to maturity in three days, others in months. The wheat rust will come to maturity in ten or twelve days, but in dry seasons it takes it longer. Certain kinds grow very rapidly. These may grow two or three feet in a single night.

During some irregular talk, it was suggested that the ailanthus tree is supposed to originate some species of fungi. At any rate, their origin is mysterious.

Professor BREWER here made some remarks concerning the silk worm, and the devastation committed by the introduction of fungi to their eggs. A great business, he said, was done in California in raising silk worms and sending silk worm eggs to France. The French prefer the California eggs to all others of the silk worm species. A gentleman in Massachusetts, who raised a great many silk worms and fed them on oak leaves, wished to try the raising of Japanese silk worms. Accordingly he imported a lot of the eggs. Fungi were introduced; they spread, and finally got upon all the eggs, both American and Japanese, and ruined them, and at last, the poor silk worm raiser had to burn down all his buildings, valued at \$10,000, to get rid of the fungi.

The committee appointed to propose suggestions in regard to the improvement of the county Fairs, now reported the following resolutions for discussion :

Resolved : That we regard permanent buildings, as well for live stock as for manufactured goods, essential to the success of our agricultural societies, thereby enabling them to continue their fairs for a longer period in each year.

Resolved : That in the location of these buildings we regard facility of access, by rail or steamer, as of the first importance.

Resolved : That we recommend to the officers of agricultural societies, the practice of securing contributions of stock and manufactures, by personal solicitations of breeders and manufacturers, and devoting some time previous to the days of the fair to this object.

Resolved : That we consider the practice of offering excessive premiums for speed in horses, as detrimental to the best interests of our agricultural societies.

Resolved : That we recommend the publication of the proceedings of the societies, and their distribution through the counties.

Resolved : That we recommend to breeders the importance of explaining at the fairs, the qualities in their stock that they consider of chief value, with statements of their practice and success.

These resolutions were generally discussed.

Mr. CLIFT spoke in favor of permanent buildings for the county societies. Norwich was mentioned as a pattern in this respect.

Mr. H. L. STEWART, of Middle Haddam, objected to horse-racing at fairs, and said that everything at our county meetings seemed to run to horse, while the exhibition of articles more worthy of attention, was almost wholly unrewarded. This is not as it should be. Instead of offering high premiums for racing at our fairs, we should offer premiums to the best breed of horses—and the draught horse, as well as the race horse, should have a premium.

Mr. DAVID LYMAN, of Middlefield, believed in fast horses, and although he would not ask for a large premium for these, yet if a large crowd is what is wanted at our fairs, the most certain way to attract one is to have fast horses on hand. He saw no objection to having fast horses, but would go as far as any one in discountenancing excessive premiums.

Mr. CLIFT said that very many of the agricultural societies were running down. The reason, or at least a very prominent reason, is that people are beginning to have a strong prejudice against horse-racing, and the perversion of societies from their legitimate aim to its encouragement. There is a deep-seated feeling in the community that these societies are handled by gamblers. High premiums are offered for fast horses, so that the attention of visitors cannot be drawn to anything else but horse. Everything is all horse. These societies ought to be brought back to their legitimate aim, and let the horse have his place beside the sheep, which is a more valuable animal to man than the horse.

Mr. SOLOMON MEAD did not object to a horse race, but would discountenance them if called upon for his opinion. For after witnessing a race, there was a feeling of emptiness in the mind. In deciding this question, let us act in a moral line.

Dr. RIGGS said he liked good horses, and liked to ride after them. But he looked at a horse race just as he would at a building on fire. He had kept away from fairs on account

of the gambling going on. There is a ring there, and they have the disposal of all the premiums. Our largest premiums go for trotting horses, few go for farm work, few for plow horses, but most for the 2.30 kind. Gambling has taken a deep root at our fairs. They who participate crowd out our steady farmers, and generally their talk is all horse, and nothing else. He would not vote premiums for fast horses, but let us have premiums for farm horses. We have no prizes for working horses. We want big-hearted men to manage our fairs, and the premiums should be arranged by them.

Mr. PERKINS, of Litchfield, explained the meaning of the resolutions so far as horses were concerned. He was in favor of horses; wanted them at fairs, for the racing helped pay the premiums to a considerable extent.

Mr. WILLARD, of Newington, remarked that at the fair in Hartford, the attendance on the day of the cattle show was greater than on the day of the horse show, and that there was no intention of leaving out premiums for the best breeds of cattle.

Mr. LYMAN was in favor of a fast horse. He was in favor of amusement, where it was harmless, especially. Instead of seeing nothing but wrong in fast horses, he thought that they had been the means of saving some of our young men from going to the devil. No real American despises a fast horse. He believed in encouraging their breeding by giving premiums, and in sanctifying the racing by taking it away from gamblers, in whose hands it may be now, and placing the thing upon a legitimate basis. Good people have a right to be amused, and if so, even good people have a right to own fast horses, and drive fast horses. If a man feels bad after he sees a horse trot, he ought to shut his eyes, afterwards, when he sees the noble animal.

Mr. MEAD spoke against inside shows, and advocated the exhibition of fruit to a greater extent, and higher premiums therefor.

The discussion being ended, Prof. Lyman, of the Sheffield Scientific School, presented an invitation to the members of the Board and others present, as follows :

Gentlemen—You have received a cordial welcome here. This institution embraces a number of branches of science, with instructors in each department, with some of whom you have already become acquainted. We are interested not only in agriculture, but in chemistry, manufactures, mining, and other departments of industry. And we all are interested, too, in each others departments, for we all work for the one great end of applied science in developing the resources of the state and country. The professors of those departments most intimately connected with agriculture, have had the pleasure of becoming acquainted with you, but the other instructors, whom I have the honor of representing, are also interested in what interests you, and would be glad to meet you more socially than they have been able to do, and in their behalf I invite you to meet for a short time in the rooms below, to spend an hour in social converse, when you adjourn from this place.

This invitation was cordially accepted, and an adjournment was made to 9 A. M., Thursday, to attend a Discussion upon Fruit Culture.

The Board met at the Hall of the Scientific School, E. H. Hyde, Vice-President, in the chair, on Thursday, 9 A. M., for Discussion on Fruit Culture.

The Secretary opened this discussion by presenting to the Board the replies which had been received to the circular on Fruit culture, one of which, from the Hon. Daniel W. Coit, was read, and made the subject of comment.

Mr. CLIFT remarked that the right preparation of the soil was the chief thing to be attended to, which in Mr. Coit's letter had been overlooked entirely, and yet to this proper preparation of the soil was due, more than to anything else, the success of Mr. Coit. His pears are his favorite fruit, and upon these he has laid out the most money. A part of his pear orchard was very wet, and this he drained by scooping out a hollow, and making a pond. He put down a principal drain, of four to five feet, and on each side of this main drain, smaller drains, leading into it. This freed the soil from water, and then he went over the whole ground sub-soiling

it, so that at last he had a rich, loamy soil, of from 18 inches to 2 feet in depth. He laid out \$100 to \$200 per acre in preparing this soil, and he has, to-day, one of the finest orchards in the State. These fruit trees are trained in a particular way. Mr. Coit has followed the system of a French horticulturist, who has written a good deal upon the subject of training dwarf pears, by making a pyramidal-shaped tree, in extending the side branches farther out than those higher up, and when the tree commences to bear, he plucks off the fruit, until the trees have gained sufficient strength to sustain it and bring it to maturity. Mr. Coit has fine crops, and his trees are in a remarkably fine condition. His other varieties of fruits do well, also, but the success with them seems to depend upon local excellencies of soil, for the Hovey's seedling, among strawberries, is a speciality with Mr. Coit, but Mr. CLIFT, in conclusion, remarked that he had tried it on his place in Stonington, and it had not succeeded.

Mr. STEWART said that you cannot prophesy how any fruit will turn out upon any particular spot of ground. Every one must experiment for himself, to find out what fruit is best adapted to his own land. This is the experience he has gained, and the conclusions to which he has arrived after having visited different localities, and made observations upon the soil, exposure, &c. A general opinion may be offered concerning what one fruit will do in a new soil, which has done well elsewhere, but no certain prediction made. This truth is illustrated in the different varieties of our pears and apples, which may utterly fail in one place, which has had the same preparation of soil as in another place where good crops have been obtained. In the valley of the Connecticut river, for example, we cannot grow some varieties of fruit at all. Mr. Stewart advised the trimming of orchard trees in the pyramidal form, especially dwarf and standard pears, peaches, and even apple trees. The fruit is not half so apt to blow off. The trees will withstand strong gales of wind much better, and it makes a good deal of difference as to whether you stand upon the ground and pick your fruit, or ascend a high ladder, at the risk of breaking your own limbs

and those of the tree, as well as bruising the fruit. You save time and apples by training your trees low. There are some pests of our fruit trees which can scarcely be got rid of. For the worm infesting our apples, pick up the fallen apples and feed them to the pigs. The best way to deal with the caterpillars is to take them off the tree, taking care that your neighbor on the other side of the fence keeps his field clear at the same time.

Mr. GOLD remarked that the growing of apple trees with very low heads, has some objections. In the first place, the color of the fruit is injured by letting it grow too low. Fruit, to arrive at perfection, needs sunlight and air, and the tree is healthier when it has a free circulation underneath its branches. It may be convenient to gather fruit when the trees are trained in this way, but the color of the fruit is sacrificed.

Dr. HATCH, of the Reform School, said: Suppose you have five acres of apple orchard land, and five acres of well-tilled land—which would any farmer prefer? Obviously the tilled land. He believed that there was too much time spent in discussing the cultivation of apples, for they never paid, unless made into cider, and above all, he discountenanced the making of money in this way.

Mr. E. E. CLARK gave the experience of a New Jersey farmer, who had entered into the cultivation of apples, and by strict attention to his trees he made it pay, and was now deriving a large income annually from the sale of his crops.

Mr. WEBB said that if people would take care of their orchards they would pay as well as any other kinds of crops. He gave the instance of a man who took a farm near New Haven. Upon his farm was an old orchard, full of dead limbs, and surrounded by birch trees. He grafted his apple trees, and spent so much time and money upon them that his neighbors told him he would certainly be ruined, and that his apple orchard would swallow every bit of property he possessed. He did not heed them, but went on in his work. The result is, that this year he sold \$450 worth of apples, without any expense of gathering. Mr. Webb remarked, in

conclusion, that he thought the apple crop, well cultivated, is profitable. Indeed, there is no other crop which will pay so well, by good cultivation.

Dr. RIGGS remarked that the apple crop did poorly with him. We can get plenty of good apples from Ohio, cheaper than we can raise them, but here, our orchards really encumber the ground. Apples do not pay. The tobacco crop is more profitable, even—excluding others even more profitable still, such as the different varieties of our grain crops. The chief trouble with our apple trees is, that they are infested with worms. And even if I clear my trees—if my neighbor, north, south, east or west of my land, neglects his own, what must be done? In addition to our former pests, a new worm has appeared, which is not much larger than a hair, and in form like the *Trichina spiralis* in the flesh of the hog. We can afford to buy our apples, in New England, excepting our cider apples, which, when cider is worth ten dollars a barrel, it may pay to raise.

Mr. CLARK thought the apple is a necessary crop—that the cultivation of the early varieties is best, and paid the most in the end.

Dr. RIGGS said he did not plow his orchards, but he manured them, spreading the manure over the ground, not particularly under the trees. He said that a compost made of lime, muck and salt, was best. These materials operate finely. The apple requires lime and salt, with humus. Keep swine out of your orchard, and do not let the plow bark your trees. Employ no laborers but the best, and he would re-iterate, keep the plow out of your orchards, entirely.

Mr. ROBINSON, of Hampton, said that fourteen years ago, he had an apple orchard containing 350 trees. The trees, after doing finely, were at last blighted by being infested with worms of various kinds. One of these worms was most destructive. He spins his web in a peculiar way, and from the marks of ruin he leaves behind him, he is known as the "fire worm." The canker worm is also troublesome, and the farmers in my neighborhood have suffered much from its ravages. If you go out in March, about half-an-hour after

sundown, you will see crowds of millers rising up from the ground. These crawl up the trees and deposit their eggs, from which the worm in June is hatched. Now, the best way to get rid of the future worm is, to prevent the miller from ascending the tree. My trees are all guarded with a mixture composed of equal parts of tar and urine, put on in a band about the tree. It is not necessary to put the tar upon cloth, because it does not hurt the tree to apply it directly, and if spread upon a cloth, the worms can crawl underneath it. This application must be renewed every day while the millers are ascending the tree. If an examination is made the morning after this application of tar and urine, the bark of the tree will be found to be coated white with millers. Mr. ROBINSON spoke of the "sap blister," as it is termed, a blight of the bark upon one side, looking as if the tree had been blistered by fire. Although it was thought that the hot rays of the sun caused this appearance of the bark, yet he found it equally prevalent upon the north and south, as well as upon the east and west sides of the trees. He next spoke of the seeming impossibility to rid his trees of the *borer*, soliciting information concerning the best means for its removal.

Mr. BARNETT, of West Haven, gave his experience concerning the treatment of the curculio upon his plum trees. The best treatment he could recommend, was this: To go early in the morning through the orchard, when the plums were about the size of peas, and dust ashes over the fruit and leaves. In this way he succeeds in raising plums. It is necessary to do this very early—say at 4 o'clock, A. M. As to the kind of ashes, wood ashes are the best. These do good from an alkali contained in the ashes, which is supposed to be bad for the worm.

Mr. BARNETT has one thousand pear trees also, upon which he adopts this treatment. His apple trees he trims in a pyramidal form, and in raising them he allows two hundred to grow upon one acre of ground, instead of thirty only.

As to the color of fruit, as relates to its situation upon the tree, he had found that many of his trees bore their fruit of

very fine color, very near to the ground. He regarded the preparation of the soil as a matter to be carefully attended to. Upon his own place he has a deep sandy soil. For pears and apples, muck was mixed with it to the depth of two feet, and in the next place he put in bones enough to last one hundred years if necessary.

In conclusion, the speaker did not approve of manure especially in liquid form, for young trees do not need high stimulation.

Mr. SOLOMON MEAD, of New Haven, spoke concerning the so-called "Fire-blight," which was produced by sudden changes in the weather, and which was best treated by wrapping straw around the tree, and in this way protecting it. It is generally found upon the south side of the tree, and the straw should be wound about the tree in early winter or in the fall.

Dr. Riggs said that the Fire-blight was caused by the hot rays of the sun, which blistered the tree. Any thing to shade the trunk was recommended. He had seen trees bound with slabs, such as were made at saw-mills, for one-half the distance around the tree, which had a good effect. This "Sun-scald," or blight, extends only so far around the tree as the sun's rays strike it, and you will not find the scald in the shade. He also recommended the binding of straw about the tree.

Mr. LEFFINGWELL, of West Haven, said that the blight had been noticed upon trees not more than two miles distant from New Haven. He attributed this disease to over-stimulation of the tree. He had been traveling in the West lately, and had seen the *borer* in Illinois. Their practice there had been to cut it out, and this had been found to be the only efficient remedy.

Mr. LEFFINGWELL stated that he found it impossible to raise peaches, for the borers kill his trees. He had applied tar, which seemed to be a good thing, though the growth of the tree was at the same time retarded.

Mr. TROWBRIDGE, of Milford, recommended that the limbs of our fruit-trees be allowed to grow low down, so that the body of the tree might be shaded. This will prevent the fire-blight. This is practiced in the West, at the present time. Some

trees are not affected in this way, among which is the dwarf-cherry. The application of chloride of lime, the speaker remarked in conclusion, was good against borers.

Mr. E. E. CLARK, of New Haven, said he had supposed that in many instances these holes were made by the woodpecker in search for grubs. He recommended the application of whitewash, applied by means of a garden engine, which had many a time saved his plums from the curculio.

Mr. DAVID LYMAN, of Middlefield, remarked that his section of the State was a good region for the finer qualities of apples. He had found his apples too, to be a profitable crop. The canker-worm had been his greatest pest. Against this worm he had used tar as an application which had to be repeated every evening for a long time, say forty times. The canker-worm moth comes up out of the ground in the fall as well as winter. Mr. Lyman has found this out by observation. To more effectually defend his trees from the ravages of this pest, Mr. Lyman has used the so-called "Tree-protector," which is designed to prevent the progress of the insect up the tree. It was a little instrument like a tent, held away from the tree by a wire, having its outer edge like an umbrella, with smooth strips of isinglass projecting from the edge; the design of which was this; that if the insects could crawl to the edge they could get no farther on account of the slippery foothold they would have. But the conclusion from the application of these tree-protectors was this, that they were good for nothing, and the canker-worm ascended the tree just as well after their application as before. He had tried next the experiment of ploughing his orchards. This had the effect to diminish the number of worms during one season upon his apple-trees in an old orchard where the experiment was tried. The ploughing ought to be followed by an application of bone-dust. This much is certain, we have got to plough and manure well if we expect to raise good apples, and to guard our trees against the ravages of the worm. This has been my experience, notwithstanding what has been said by Dr. Riggs against the use of the plough in our orchards.

He had been troubled with the borer on his peach trees.

His remedy is to dig eight inches from the tree all around it and fill in with slacked lime.

In conclusion, Mr. Lyman said that our fruit trees, and especially the apple tree, needs stimulating. Our fruit trees are starved. They do not receive sufficient nourishment, and by all means orchards should be ploughed and manured every year, and then we will get fruit every year. The ploughing should be very shallow, and should be done in the fall. If any crop is put in with your apple trees, don't put in grain under any circumstances. Put in potatoes, and perhaps a corn crop would not hurt your trees.

Professor BREWER said that the Professor of Zoology in the Sheffield Scientific School had been investigating the subject of the different pests of our trees, and especially the history of the canker-worm, as it appears upon the elm trees about New Haven. Whether this variety of the worm is the same as that infesting the apple tree, the Professor was not certain, but in this they are alike, they strip the tree of foliage. The variety of worm infesting our elm trees attains its growth between the first and the seventh of June. It is a common thing to say that they leave about the tenth of June. When they have attained their growth upon the tree, they leave and go down into the ground to go through with their second stage of development there, and as has been said, they come out of the ground in the fall. Three-fourths of our people believe that if they attempt to protect their trees against the ravages of this worm, that it is sufficient if the attempt is made in the spring. It is not so. These worms may come out during the warm days of winter, and also in the spring. The females can not get up the trees without crawling, for they are not provided with wings.

There have been practiced different methods for the protection of our elm trees, and the cheapest and best is to cover the body of the tree two or three feet from the ground, with paper smeared with printer's ink. This is better than the application of tar, for it remains sticky much longer. It does not gloss over like tar. It is the cheapest application that can be made, and has been tried with success in some parts of

New Haven city. It must be put on in the fall and in the spring.

The trees about the colleges were provided with a leaden rim surrounding the tree, fitting it like a collar, and having a hollow filled with oil between the rim and the tree. The idea was that the canker-worm would tumble off in trying to climb around the shelving edge, or if he succeeded in getting around this that he would die in attempting to cross the intervening fluid. These were found not to work well.

The best protection against these worms and other pests is to have their natural enemies flourish at the same time. There is an enemy of the canker-worm, a green beetle, which has an enormous appetite, for they eat all the while. These beetles and the birds which live upon the pests of our trees are our best safeguards against the attacks of the worm.

There is also a fly called the ichneumon fly, which attacks the eggs of the canker worm and blights them. All these enemies then of the canker worm kill it, and diminish their numbers, so that when it is noticed that during some seasons our trees are comparatively free from the worm, you may be sure that this decrease is owing to the fact that their natural enemies have increased in a corresponding ratio. When these enemies also of the worm die off, then you will notice that the elm trees are beginning to be laid bare again. And as one end of the scale goes up, the other end goes down.

There was a fly called the Hessian fly, which was brought to this country in the time of the Revolution by the Hessian soldiers, which committed great havoc throughout the country on the grain crops at that time. The trouble here was that this fly was imported, but its natural enemy was left behind, and it accordingly swept the country, destroying crops, from the Atlantic to the Mississippi.

Ploughing orchards is a valuable auxiliary to getting rid of these worms. The ground is turned up and they with their eggs are exposed to the attacks of the birds, and their other enemies. The idea of Mr. Lyman then that ploughing your orchard is a good thing is approved, for in the ground the worm goes through with one of its most important states, and

when turned up to the attacks of the enormous appetites of their devourers, the truth of these lines is well illustrated:

“Big fleas have little fleas upon their backs to bite ’em,
And little fleas have lesser fleas, and so *ad infinitum*.”

After these remarks, Mr. BACON, of New Haven, presented to the convention some Isabella grapes which he had received from the West, and after these had been commented upon by the members of the convention, an adjournment was made to hold an extra afternoon session at two P. M.

AFTERNOON SESSION, THURSDAY, 2 P. M., JANUARY 10th.

The meeting commenced by a discussion upon grape culture and the pests of the grape vine.

Mr. BARNETT, of West Haven, explained a system of vine propagation which he is at present practicing—a process of his own discovery. He dispenses with “the sickly heat of the glass pen” and steam propagation, and raises a batch of vines as easily as a batch of bread is made.

The details of the process for raising the “rootling” will at a proper time come before the public, and as all that is desired is the honor of his discovery, no patent is sought after. Mr. Barnett, after these remarks, gave his experience concerning the insect enemy of the grape vine, called the *Thrips*, and said, this has lately become quite a pest in the vineyard and garden, and its ravages are so great that by estimation it destroys one-third of the entire crop. Instead of diminishing, it has been steadily on the increase. Many have given up in despair of a remedy, and it is at this time holding full possession over sections which a few years ago were entirely free from it.

Skillful vineyardists have confessed that they are suffering without a remedy, and many others who know not the nature of the malady are wondering why their vines, heretofore so productive, have ceased to be fruitful. The discussion before

the American Pomological Society a few years ago, shows that eminent fruit growers were then at a loss in regard to the cause that was depleting their vines.

Mr. Barnett having had his attention directed to the thrips, gave his own experience.

The thrips belong to that order of insects called by entomologists "Hemiptera." This order has no jaws for eating, but lives by suction, and it is the juices of vegetation or of animals upon which they feed.

The thrips preys upon the current season's growth—the shoot, leaf, tendril and fruit of the grape vine. The first that is observed of it in early spring is a small glassy egg on the tender shoot or leaf, and where this egg is to be found there will soon follow festering blotches, first red, then brown, then black, the leaf becoming yellow and ceasing to grow; the fruit dropping off, or if not badly affected, appearing with round blotches, and the stem deprived of its juices, and poisoned by the sting of the insect, presents a corroded appearance of any thing but health.

Later in the season the under side of the leaf will be covered with minute insects with wings, hopping when disturbed and sucking sustenance from the leaves, which causes them to appear as if covered with white specks. They increase very rapidly, and both a dry season and shelter favor their increase. Still later, when the leaves are beginning to fall, they are to be found under the vines on the leaves, and on disturbing them there, they still hop very briskly in every direction. Follow them still later, after snow and frost have set in, and on examination of the moist leaf under the vine, and on the smooth inverted side of it, often from one to many dozen of these insects are seen. Upon exposing them to the warm sun, or upon taking them to a warm room, they will run and jump about very rapidly. The best way to see them is to drop them on a white, smooth table or paper. Some are with wings; many are without wings, for the young and the female at this season appear wingless, and all of them of a mouse color, or the color of the leaf upon which they are found. In size they are from a pin's point to a pin's head. If the leaf be

dry they will when cold fall to the ground; if both wet and cold they adhere. They are to be found on the grape leaf alone. On no other leaf has Mr. Barnett been able to discover a single one. This insect lays its egg in early spring, and increases in countless numbers.

The remedies proposed are three; the first by Fessenden, the second by Grider, and the third by Mr. Barnett. In the grapery they are easily destroyed by smoke, and Fessenden constructs a movable tent to smoke them along the trellis; but in the vineyard this is all but impracticable.

The second uses torches and lime dust in early spring, and if carefully carried out the remedy is a good one. As Mr. Grider, of Pennsylvania, was the first who gave a practicable method for destroying the thrips in the vineyard, Mr. Barnett named the disease caused by the insect to the vine in honor of him, the *Corrosa Grideri*, by which name it is known in the vicinity of New Haven.

The remedy which Mr. Barnett proposes is this. Having tracked the devourer to his haunts, and observing his torpor when cold, and his adhesion to the leaf while moist, he rakes on a cold, moist day, all the grape leaves of the vineyard, and thus at one fell sweep he secures the whole brood for the coming season, and having thus secured them he makes sure their destruction.

Mr. Barnett farther said that with his system of propagation grape vines could be as easily raised as strawberries, and entered into an explanation of his manner of raising vines at his nursery in West Haven, about three miles distant from New Haven.

These discussions, after desultory remarks from Mr. Trowbridge, Mr. Cramer, from Morrisania, near New York, Mr. Clift, and others, were closed as the hour of three P. M. arrived, for the second lecture of Professor Brewer, upon the "Diseases of Plants caused by Fungi."

LECTURE II.

ON THE DISEASES OF PLANTS CAUSED BY PARASITIC FUNGI.

IN the previous lecture I noticed some of the general facts relating to parasitic fungi, and spoke more particularly of those causing smut and rust in grain. In this I will speak of the grape mildew and the potato disease, two diseases which became especially destructive about the same time, and first attracted attention the same year, 1845.

About this time a blight made its appearance in some of the vineyards of Europe, and it soon spread over the continent, causing the greatest distress. In places the devastation was complete. As in similar diseases on other plants, various causes were assigned, but it was soon decided to be a parasitic fungus to which the name *Oidium Tuckeri* was given.

Before speaking of the disease in detail, let me call your attention to certain facts mentioned in the last lecture; that all the various kinds of *mold* or *mildew* are peculiar vegetable species that live and grow upon organic matter, which may be either living or dead, and that they cause chemical changes in the substance they grow upon. If it be dead, then they cause it to decay faster; if living, they often kill it, or at least, nearly always injure it, sometimes merely enfeebling the plant, at others killing the part attacked, and often causing it to rot with great rapidity. The fungus plants, moreover, are often very variable under the different conditions in which they grow, sometimes assuming one shape, and at others some other shape, so widely different that for a long time microscopists mistook them for other species, or even genera, yet they may be but different conditions of the same fungus. Furthermore, chemists were divided in opinion, whether the chemical changes that accompanied their growth were caused by them, or whether they were a sort of result induced by the chemical changes.

In regard to what constitutes distinct species among the myriad forms that these minute fungus plants assume, bota-

nists often still disagree, but the main chemical fact that they are the cause and not the result of disease, decay and rot, is now admitted by nearly all chemists of repute. The first of these questions is of minor importance to the gardener and farmer, although of great scientific interest, but the second question is the one of vital importance, and upon this, as I have said, chemists are pretty uniformly agreed, and farmers must accept the fact, to profit by the conclusions that scientific men have established.

We will now return to the grape disease. Vines that are healthy first begin to show the blight upon the leaves. Brown spots appear upon the surface, which, when carefully examined with the microscope, show that a growth of minute fungus has begun. The mycelium branches over the surface, and pushes into the leaf, like roots into a soil. Wherever this reaches, the part is blighted. This extends to the berry or grape, and extends over that, as it did the leaves. As its growth continues, it soon begins to fruit, that is, produce *spores*. These spores are exceedingly minute, fine as impalpable dust, only one three-thousandth of an inch in diameter, sometimes more and sometimes less, somewhat egg-shaped, a little cell, but each capable of producing a new fungus if it falls under the right conditions. So very small and light, that it may be carried by the winds to a great distance, floating in the air as the finest dust. To germinate and grow, they must be in a moist air, and have a temperature of above 60° F., hence warm, damp air, is the most favorable to their growth. Although the leaves are affected, the great damage is to the grapes themselves. The mycelium covers the berry, like a whitish mould, its branches penetrating the skin, and under their influence the pulp is changed in its chemical character, and rots.

I will not describe in further detail the successive stages of growth, nor the various forms assumed under different conditions or periods of growth; to do so would require too much time. The result is, the berry of the grape is no longer fitted for food or wine, it is destroyed, and as this goes on, the fungus produces new spores in countless millions, which rise

upon every breeze just at the time when the vines are in proper condition to give them a home, the vineyards over wide areas are devastated, the vine-grower finds his labors useless, and his living destroyed. We cannot appreciate here the distress this disease caused in some places in Europe.

Various remedies were proposed, but that one found the most efficacious was the application of sulphur to the vines. There are various modes of applying it; that most popular and in the widest use, is to dust the leaves and fruit with common flowers of sulphur. This may be blown over the vines by a kind of bellows, or applied in any way. It should be applied as soon as the disease appears, and then repeated if its ravages are not checked. Sulphur checks other species of mildew upon other fruits, sometimes effecting a cure, in other cases not.

All the European varieties of grapes are considered by botanists to be varieties of but one original species. In America there are several native species, all specifically different from the European, giving rise to numerous varieties. For open air culture east of the Mississippi, these varieties of American origin are almost exclusively used. As I told you, in my last lecture, different species of plants support different species of fungus parasites; at least, many of the species of fungi will flourish on but one species of the higher plants, or will not produce bad results on but one species. It is probable that this is the case with the "*Oidium Tuckeri*." It apparently belongs specifically to the European grape, and does not, to any extent, affect grapes of American origin. Other species of mildew affect our grapes, some of which yield to treatment by sulphur.

It is probable that other species of *Oidium* affect our grapes, but not the *Oidium Tuckeri*. Upon this however, microscopists are not agreed. Whether it be strictly true or not, it is certain that even in Europe the American varieties are vastly less subject to its ravages than the European, and are now being extensively introduced there, because of their less liability to this disease.

It is thought by some, that the disease, if not caused by a

weak or enfeebled condition of the vine, is more liable to occur on feeble vines. Upon this there is a difference of opinion. It is conceded that some *varieties* suffer more than others, but there is no good proof that the "degeneracy of the vine" has anything to do with it. A bad season has more to do with it than bad cultivation.

Of the many other molds and blights, I have no time to speak, but will pass to the next part of the subject, relating to the *Potato Disease*. You are all familiar with the appearance and effect of this potato disease, or potato rot—that as a serious evil it is of comparatively modern date, and that in certain years the tops become blighted and the potatoes decay—that the tubers sometimes rot early in the ground, before they are dry, at others they come out of the ground comparatively sound, but rot later, in the cellar, and that when diseased they are unfit, as food, for either man or beast. Before 1840, this disease was of rare occurrence. In 1842 and '43, it appeared in Belgium, in 1844, in Canada; in 1845, not only in these countries, but on the Isle of Wight; and also in America. During the next four or five years it spread rapidly over the civilized globe, and in some countries reduced the inhabitants to the severest distress. In Ireland it was so severe that it is estimated that over a million of inhabitants perished by the famine it caused. Between 1845 and 1865, enough was written upon the subject to fill hundreds of volumes, and the theories put forth were very numerous. Parasitic fungi was early suggested, but the theory rejected, mostly on the authority of chemists, who held the theory that the growth of the fungi was not the cause of certain chemical changes, but rather an accompanying fact. The most popular theories were, that by long cultivation, the potato plant had become enfeebled, had "run out," as farmers say, had a "constitutional weakness"—some said "too high manuring produced it," but there were numerous other theories—among them, "electricity," "the absence of salt in the soil," "bad weather," "stagnation of the juices," "an emanation from comets," "a want of ozone in the air,"—some connected it with the "cholera," others "a mysterious dis-

pensation of Providence," like the plague, by which he punished mankind for their sins, and so on, through perhaps hundreds of theories and speculations, each having believers, and no proofs of authenticity. But long and laborious study by scientific men, has revealed the cause, which has been fully proved to be a parasitic fungus, known to microscopists as the *Peronospora infestans*. The honor of clearly proving this belongs to A. DeBary, of Berlin, a microscopist and botanist, who has devoted many years of study to this class of plants, and the diseases they produce. In 1861 he published a pamphlet giving the result of his labors. Professor S. W. Johnson translated the more important parts, and gave the results, which were published in the *Country Gentleman*, for 1863, vol. xxi, pages 57, 217, 249, 361. A blight of the tops always precedes the rot of the tuber, and the disease consequently first shows itself upon the leaves.

It starts from a *spore* of very minute size, which germinates upon the surface of the leaf. The *mycelium* enters the cuticle sometimes through the stomach or breathing holes, and sometimes directly through the cuticle, piercing the cells. After penetrating the cuticle, the mycelium extends rapidly, and branches through the substance of the leaf, living upon the chlorophyl or green matter; they are the feeding roots, as it were, of the parasite, which rapidly blight the portion of the leaf upon which it grows, producing brown or discolored patches. In the mean time, fruiting branches push out into the air, through the cuticle or through the stomach, bearing numerous spore-cases. These are little sacs, each producing twelve to sixteen spores. These spores are oval in shape, having at either end, a hair-like organ which is in rapid motion for some time after the spore escapes from its sac, giving it the appearance of a living animalcule and hence called by botanists zoospores. We will call them simply spores. This spore is so light that it is wafted easily by the wind. If it falls upon the leaves or stalks of the potato, and the air is moist, the motion of the hairs becomes slower, finally ceases in about half an hour and then disappears. Then the spore begins to change shape, and soon a thread-like branch protrudes from

its side. This is the beginning of the *mycelium*, which then pushes through the cuticle in the manner already described, and commences its career of devastation. If the atmosphere is favorable the blight rapidly extends; the leaves die; the stalks become blighted. Fresh spores are continually produced. Some fall to the ground and are carried through the soil by water, and lodge on the potato, where they germinate, and the mycelium penetrates the tuber, causing it to rot. The mycelium will grow rapidly in the tuber, under ground, but the fruiting branches only grow above ground, on the tops or leaves, where they can get light.

All of these effects can be produced by experiment. Healthy potatoes may be made to rot by sowing the spores upon the leaves, or even upon the tuber itself. One of De Bary's experiments shows this beautifully. A perfectly healthy potato is well washed and cut into halves; each half is placed in a clean saucer and carefully covered with a bell glass to protect it from dust, and outside disturbances; a little pure water is placed in each saucer, to prevent the tuber drying. Upon the cut surface of one of the pieces some of the spores of the *Pero-nospora* are placed; the other piece is carefully protected from receiving any, but in all other matters the two pieces are under the same conditions of temperature, moisture, light, &c. In a few days, varying with the temperature, the half upon which the spores were sown begins to show signs of disease, the other half remaining healthy.

The surface of the tuber first begins to turn brown in spots where the spores were placed; these brown patches increase in size, until in a few days more the whole cut surface is discolored, to the depth of half a line. The change continues around beneath the skin of the tuber, and penetrates deeper until the whole is infected. If much moisture be present, the whole mass changes to a dark, foul liquid, otherwise it dries away and shrivels up as diseased potatoes do in a dry cellar. Upon the surface, branches have appeared during this change, appearing like mold. This is the fruiting portion of the fungus, producing spores, the mycelium ramifying through the mass of the tuber, and producing decay.

With the other half of the potato things have gone on very differently. The cut surface discolours at first, as all cut potatoes do, but then the change ceases ; no rot takes place, and the piece undergoes no other change than occurs in any sound potato.

The same thing takes place when the spores are sown upon the surface of an uncut potato, the spores germinate, the mycelium penetrates the skin, and then the interior of the potato becomes diseased as before. In each case a week or more is required for the disease to show itself, longer if the weather is cool.

We may produce the same effect by burying the potato in the soil, placing blighted potato tops on the ground over them, and then watering them by sprinkling. The spores will be carried down and in less than two weeks the potatoes will be diseased. The spores of this fungus may be found in the soil of an infected potato field, upon microscopic examination.

Multitudes of other experiments show the same facts, and De Bary has proved that in every case where the disease exists, there is the fungus, and where the fungus is there is disease.

Next, how is this perpetuated from year to year? The spores can not survive the winter, but the *mycelium* which penetrates the interior of the potato can survive. This has been demonstrated by various observers. In the cool cellar this mycelium may remain dormant; with proper warmth it may develop. Where the infected potatoes are wounded or the skin broken, if warm enough, fruiting branches appear upon the surface, if exposed to light, but not in darkness. The mycelium may, however, grow rapidly, and the potato as a consequence rot in darkness, but the fungus produces no spores except in the light.

Now how does the disease start in the spring? Only from diseased tubers, somewhere, which contain the mycelium. It may be in such small quantity that the tuber appears sound and healthy. After planting, as the shoots start, the mycelium follows it, passes out of the soil with them, and then commences fruiting. The extent and rapidity with which

this spreads depends upon outside conditions, moisture, temperature, &c. But these explain a multitude of facts; why sometimes a field is rapidly blighted, as if by fire; at other times only a streak is infected; why sometimes it comes early, at other times later in the season. It is easy to imitate all these conditions by experiments, and many might be related, but I have wished here to give only the main features.

I will give the following summing up of De Bary of the cause and course of the potato disease, in the language of Professor Johnson, as translated and given in the *Country Gentleman*, before cited. "A parasitic fungus, *Peronospora infestans*, exists only by feeding upon the potato plants. Its mycelium penetrates the tuber in order to hybernate in them. Kept cool and dry it vegetates but slowly or makes no growth, but in warm weather or under favorable circumstances it increases luxuriantly; then the mycelium extends itself into the stems of the potato plant in order to, sooner or later, produce its spore-bearing branches, and spores which transferred to the neighboring parts of the plants speedily penetrate the healthy tissue and produce the *leaf-blight*. The parasite spreads from one or many such sources over the field, and from one field to another, the foliage of the potato becomes discolored and the tops die down. Of the numberless spores produced on the foliage a large part fall upon the soil, and penetrate it, (washed down by the water.) Some of them reach the tubers and develop within them their mycelium, and thus insure the continuation of the life of the fungus, as the tuber insures that of the potato plant. When developed in large quantity, it produces rot and destroys the tuber. When in smaller amount it causes slight, often imperceptible patches of disease, through which it comes another year into the field, and renews its life and perhaps its ravages."

Before passing to the proposed remedies, I will devote a few words to other supposed causes of the disease. The ones most often brought forward are a sort of constitutional weakness, caused by the degeneracy in the vigor of the potato plant, from long cultivation, and by too wet soil. Let me say that the potato plant, as a species, has not thus degenerated.

Tested by any rule it has not degenerated. Under the same conditions, planted from wild tubers, no more vigor of growth is demonstrated than from those which have been long under cultivation. Wild potatoes themselves rot when infested with this parasite, and many trials in nearly every quarter of the globe, have proved that potatoes derived from seed brought from its native land but a few generations before will rot with the same facility as the long-cultivated varieties. As another proof that a constitutional weakness has not been the result of long cultivation, we may say that this plant in its wild state has a limited range of growth, but in its cultivated state it has a wider range of growth than any other cultivated plant. Between the years 1845 and 1860, many attempts were made, both here and in Europe, to get more healthy varieties of potatoes by importing the original plant from the mountains of South America, and propagating new varieties from that. The plants so obtained had no especial immunity from disease over varieties produced from the long cultivated plant. Furthermore, the disease attacks the most robust and hardy kinds as well as the more feeble; and the fungus seems to prefer an otherwise healthy plant. It certainly grows with more vigor upon a healthy than upon a feeble or sickly plant.

It is a fact, however, that it attacks some varieties more readily than others. This is to be expected, as it is analogous to similar diseases in other plants. Rust and mildew do not attack all varieties of grain alike, and the same with other parasitic diseases. So too here, even in the same field, some varieties are much more liable to its ravages than others, *but no variety is known that is exempt from this disease*. Dealers, and interested persons, will tell you to the contrary, and they also often are loud opponents to the fungus theory of the disease. But the fact that some varieties possess a partial immunity, that they are *less liable* to disease, is an important one, and should not be lost sight of at times when the disease is prevalent. In some years, this partial resistance to the ravages of the fungus may prove for that year a positive preventative, and such years we may sometimes

see certain varieties almost or entirely escape the disease, which in other and less favorable years, would show some rot.

We will now pass to the proposed remedies, or cures. It is unnecessary to notice the many remedies proposed which assumed some other cause of the disease, and then worked at this imaginary cause. In regard to the diseases of other plants, arising from similar causes, I have already told you that a *cure* can be effected only through destroying the fungus, in some way. In the grape disease, we do this with sulphur; in smut, by salt brine. In the rusts and mildews, we possess no means of economically destroying the fungi without destroying the plants they prey upon, so we must do what we can to resist its ravages as far as possible. In the wheat plant, we drain the soil to make it drier, and the air drier over it; that the stalks may be less succulent, we harden them by the use of certain manures; or we cultivate those varieties least liable to the disease.

We possess no cure for the potato disease, because we know of no means of economically killing the fungus without destroying or injuring the tuber. The practical farmer can check its ravages, however, even if he cannot cure the disease.

1. Plant only sound potatoes, for every diseased potato is a source of fresh fungi.

2. Either plant deep, or else hill up the potato very high, early during the growth. It is often found that tubers lying near the surface decay, while those that lie deeper escape. The reason is obvious. The spores from the surface do not reach those deeper buried so easily as they do those near the surface. This is one of the most valuable of the proposed remedies, and agrees with experience.

3. Mowing off the tops of the potatoes when the blight appears, has in many cases saved the tubers. In other cases it has failed, because a crop of spores has already fallen on the soil, to penetrate to the tubers. The removal of the tops from the field, or leaving them in the furrows, so that the spores from them would not wash down into the hills among the tubers, would lessen the liability to rot.

4. A French gardener proposes pressing over the tops with a roller, so that the spores fall into the furrows between the hills, and are washed into the soil in that place, away from the tubers. He found that while potatoes thus treated were not entirely saved, the ravages of the rot were less.

5. Certain English farmers recommend laying off the potato tops on either side, half right and half left, along the rows, and throwing dirt upon the ridge, over the stems and roots. They state that in this way a great saving is effected.

6. Professor BOLLMANN, of St. Petersburg, proposes to cut the tubers, and dry them by artificial heat, until they are well shrunken. This was supposed to kill or check the mycelium of the fungus, without destroying the vitality of the eyes of the tuber. It is said that an extensive potato grower in New York, the Hon. A. B. Dickinson, ten years ago adopted a similar plan with tolerable success. He cut his potatoes into thin slices with but one or two eyes in each, and then dried them by exposure to the atmosphere. (See *Country Gentleman*, August 20th, 1857, and June 9th, 1863.) He afterward covered the pieces with a coating of tar and plaster, as a further protection.

7. Mr. HOLLAND, (of Sussex, England,) strips off the leaves as soon as they show signs of the blight, and cuts away the diseased stems, and also hills up the rows higher, beginning indeed by planting on a ridge.

Other ways may suggest themselves to the intelligent farmer. If the fungus theory is generally accepted and understood, I question if the rot will ever again occur on such a general scale as it has in times past, even though we may not be able to cure it entirely.

It must be borne in mind that the weather exercises a most important influence in all these diseases. Molds, mildews, blights and rusts spread faster and are more destructive in damp, warm weather, and also on wet soils. Thorough drainage lessens the liability.

I have said that this disease began to be noticed extensively about 1845, but that it appeared in 1842. Now it must be borne in mind that the disease did not *originate* then; it was

merely brought into notice by its greater ravages. The disease is perhaps as ancient as the potato itself. As I have stated, it is found even upon *wild* potatoes, in its native country, and in unfavorable years shows itself in the cultivated plant in its native country. Joseph Acosta, a Jesuit, observed in Peru, in 1571, about three hundred years ago, that the potato tubers often spoiled in the earth during or after cold, bad weather, from "blight or mildew."

Boussingault sent to the Paris Academy, in 1845, a letter from Bogota, in which it was stated that on the table lands in that vicinity, the potato spoiled in moist situations every year, *and in wet seasons spoiled every where*. This is near the original home of the potato.

In a treatise on the potato written by Ludwig, in 1770, but fifty years after its general field cultivation in Germany, and before it was widely cultivated in France, occurs a description of a malady or "visible blight," like the present disease. In Alsace, in eastern France, a malady precisely similar, and probably the same, occurred in 1816, and other cases might be multiplied. It seems probable that it originated with the original wild potatoes, and afterwards spread to the cultivated plant.

Precisely why it so suddenly assumes such formidable properties, is not so easily explained; several causes probably contributed to it. The potato had become widely spread, and probably the atmospheric conditions were peculiarly favorable. The simultaneous spread of the grape disease, at the same time, may indicate that the atmosphere of those years was unusually favorable. I consider the cause of the disease to be well proved, but it does not follow that one can explain all the phenomena connected with it. As I stated at my first lecture, there has been much light thrown on this matter, and we hope more still will emanate from researches now in progress, and let us strive to bring all the aids which modern science can give, to the great question of improving our agriculture. In this obscure branch of science, from the very nature of the case, practical farmers can not become extensive investigators into the causes of the disease, but they can use the knowledge obtained by laborious scientific research;

and in turn aid science by applying its principles, and bringing the suggestions that arise from their experience, back to the scientific investigator.

[NOTE. When this lecture was delivered, I had not yet seen the "Report of the Commissioner of Agriculture" for 1866, which contains an article on "The Grape Disease of Europe," (pp. 324-338,) by one of the attaches of the department. Since the department considers the matter of sufficient importance to treat it so learnedly, it is to be regretted that it had not taken pains to see that the information was reliable and up to the latest discoveries. The article appears to be compiled from various sources, good, poor and indifferent, in which the theories put forth fifteen years ago, before the question had been so fully studied as now, are given along with those of later date, as of equal authority. The author appears to be entirely unacquainted with the researches of the more eminent active workers in this department of late years. In some cases, the most crude notions long since exploded, are mixed with those of actual value from reliable observers.

We think that grape cultivators will be surprised to learn, (p. 328,) that "*The Vitis Vinifera*, or European grape, will grow on this continent in California alone." It is unfortunate that a document so widely spread, and coming with such official authority, should put forth the idea maintained on pages 328, 329, &c., that these diseases while caused by fungi directly, primarily have their origin in the degeneracy of plants because cultivated. This doctrine was held some years ago, but I am not aware of a single mycologist of note that now holds such an opinion; the contrary one is in fact held. In regard to the *Peronospora*, one of the latest and best authorities states, "the vegetation of the parasite is the cause of the malady, and there is no individual predisposition beyond the fact that each species of *Peronospora* is confined to certain species of phaenogams. Opposed to the notion of predisposition is the fact that *the more healthy the nutrient plant, the more vigorous is the Peronospora which inhabits it.*" We are fully aware of the strange varieties which occur in the growth of some of these parasites that prey upon several species, but

the idea that the *Oidium* which infects the grape, the *Peronospora* which infects the potato, and the *Botrytis* which infests the silk worm, are "the same parasite, modified by characteristics depending upon circumstances, and the difference of organisms upon which they prey," is not tenable at all in the present state of our knowledge. We fear that farmers, gardeners and silk-growers will get little aid from science which holds such a belief, combined with that other dogma that this strange monster has its origin in cultivation. It is only on the fact that they are specifically distinct parasites, each a definite organization, requiring definite species to inhabit, and needing definite and different treatment to extirpate, that we can hope to cure the diseases they cause. I had thought to add a plate representing the phases of the *Peronospora infestans*, as was used in the oral lecture, but on reflection think it hardly necessary. It might be curious to see, but not of value to the farmer, as the species is so fully described and figured, in works within the reach of all.

After the lecture of Professor Brewer a business meeting was held by the Board, E. H. Hyde in the chair.

The resolutions reported by the Committee for the improvement of our fairs were taken up and adopted, the printing committee being authorized to revise them before publication.

Provision was made for a two weeks' course of lectures, by Professor William H. Brewer, during the winter, in different sections of the State. Messrs. Hyde and Robinson were requested to arrange for one week east of the Connecticut river, and the Secretary for one week west of the river.*

The following resolutions were then passed:

Resolved, That in behalf of the farmers of Connecticut, the

* These lectures were delivered in the following places: Norwich, one lecture; Central Village, one; Brooklyn, two; Stafford, one; Rockville, two; Hartford, one; Bristol, one; Norwalk, one; New Milford, one; and Falls Village, one. The subjects discussed were *Draining*, *Manures*, and *Breeding*. The attendance was good considering the weather, and the interest manifested such as to encourage the repetition of even more extended courses at some future time. The most interest was exhibited in the smaller towns, and it is here that the class most to be benefited reside.

Board of Agriculture present their hearty thanks to Professors Johnson and Brewer, for their interesting and instructive lectures, and to the faculty of the Sheffield Scientific School, for the accommodations they have so kindly furnished.

Resolved, That the thanks of this Board be presented to the members of the press for communicating the object of this meeting to their readers, and aiding in our labors.

Adjourned to seven P. M. to listen to a lecture by Professor Johnson, on some "Principles that may guide the Farmer in the selection and use of Fertilizers."

After this lecture the Board adjourned *sine die*.

In December, 1866, with the advice of the Committee appointed to prepare subjects and essays for the meeting of the Board in January, I issued the following circular, containing questions upon the subjects of *Drainage*, *Irrigation*, and *Fruit Culture*.

These were sent to individuals in every town in the State, and elicited a large number of replies, the substance of which I have embodied under their appropriate heads. Omitting apologies and introductions, I have retained as far as possible the language of each writer, designing to give their individual opinions, and while I have condensed somewhat, I have aimed to report fully the experience of each one, whether successful or not. This of course creates some repetition, but this must be allowed in drawing our facts directly from the practical men who have performed these labors with their own hands, and I confidently present this report as eminently practical, the name and residence of every contributor being given, so that all the facts may be fully substantiated.

SIR:—The CONNECTICUT STATE BOARD OF AGRICULTURE, being desirous to gather from practical men, facts upon the subject of *Drainage* and *Irrigation*, and also of *Fruit Culture*, solicit from you such details of practice and their results as have come within your observation.

This Circular is designed rather as suggestive, than to be strictly followed.

Please reply immediately, on one or more of the topics, in time for the meeting of the Board in New Haven, January 8th, 1867.

If not convenient for you to attend to these matters, will you please hand this Circular to some one who will furnish a few facts from your town or section of the State.

T. S. GOLD,

Secretary State Board of Agriculture.

WEST CORNWALL, CONN., December 12, 1866.

QUESTIONS UPON DRAINAGE.

When did you commence Draining? How many acres have you drained, and with how many rods of ditch?

Ditches open or covered? Laid with tile, or filled with stone or other material?

How constructed, and if on an inclined surface, do they run directly down, or obliquely, or across the slopes?

Character of the soil, sand, gravel, clay or muck? Shape of surface, level or inclined?

Breadth and depth of drains, and distance apart? Condition of field and productiveness, or annual value before and after draining? Permanency or failure of drains, and cause? Amount of water delivered, and the portion of the year that they run? Cost of tile and of drainage?

The immediate or permanent effects of drainage upon the healthfulness of families or neighborhoods?

State any particulars in your experience not referred to in the above headings, even remotely connected with the subject, with reasons for your operations.

QUESTIONS UPON IRRIGATION.

Give your experience in irrigation, or observation of its effects.

What kind of water was used? That of streams or springs, clear, or the drainage of villages and manufactories?

What has been the effect upon fruit or other trees?

At what seasons should the water flow upon the fields, and how long?

Have there been any ill effects, as shown in injuring the quality of crops, or health of animals?

QUESTIONS UPON FRUIT CULTURE.

What has been your experience, success or failure in cultivating different kinds of fruit?

Describe your soil and exposure. What varieties of each kind seem best adapted to your locality?

Detail your practice in planting trees, or small fruits, preparation of land, after culture, pruning, winter protection, &c.

Insects and diseases; description; cause, and remedy or prevention?

New varieties of fruit promising to be valuable.

Gathering, preserving and marketing fruit. Cost and profits of fruit culture? State any facts in your own experience or observation bearing upon this topic; including failures, with cause, as well as successes.

Name the ten best varieties of apples and pears for orchard culture or family use.

DRAINAGE.

THOMAS A. MEAD, GREENWICH.

Since I received your Circular, I have taken a number of walks over my drained land in order to approximate as near as possible to the amount of drains I have laid. The result of my investigation makes two thousand two hundred and thirty rods, or ten rods short of seven miles. These drains were commenced in 1816, and I have made more or less from year to year, till the present time. Number of acres drained is forty, or perhaps a little over. The average depth of drain is three and one-half feet; width, two feet; filled by placing flat stones on the sides and setting up stone eight or ten inches long against them, small end down, until the bottom is filled,

then packing as close and tight as possible; the top is finished by pounding up soft or rotten stone, making a perfect seive, leaving sixteen inches to be filled with earth. This process of filling takes about four cart loads of stone of twenty-five bushels each, per rod. Thus I have put out of the way on my rocky farm, (8,920) eight thousand nine hundred and twenty loads of stone, and in my judgment considerably more.

On my uneven and hilly farm about my whole object in draining has been to take the springs before they come to the top of the ground, by digging a little above where the water appears. This spring-drained land, when thoroughly drained, makes number one land for all farming purposes. I have made some drains through hollows or depressions in fields, where, in ordinary seasons, good crops are obtained, but perhaps once in three years a heavy rain would cause the water to stand and drown the crop. I think that in a number of instances I have been fully paid in one crop by such drains.

In another case I have about three acres, the soil from eight to twelve inches deep, subsoil a hardpan, drains very expensive, yet the increase of product pays well for the labor.

In 1864 I had twenty acres of this drained land, which produced (it will be called a big yarn or stretcher, but nevertheless it is true,) of mow cured hay as taken from the mow and carried to market three and one-half tons per acre, and fifty acres, I have no doubt, producing three tons per acre.

In 1864 we had seasonable rains, perhaps rather wet till the fore part of June; the remainder of June was dry, so that the grass stood up and came to full maturity. 1865 was a wet season, with a very large growth of grass, and very much lodged, great bulk and little weight; or to make the point more clear, in 1864 and 1866, rather dry seasons, there was no difficulty in putting twenty-five to thirty hundred weight on a cart at a load, while in 1865, the same men and carts, and under an effort, by direction from me, to put on a ton, seldom exceeded eighteen hundred pounds, making a difference of just about one-third.

The cost of drains per rod has been from forty cents to two dollars, averaging a little under one dollar per rod.

As to the effect of draining on the annual value of the land; the forty acres could not have been worth three dollars per year before draining, but after draining, twenty-five or more. For the last four or five years the value has varied, from fifty to even in some instances over one hundred dollars. Put the value of forty acres undrained land at fifty dollars per acre, (\$2,000) two thousand dollars; draining I will put at (\$2,500) two thousand five hundred, a little above the previous calculation, making the cost of the land (\$112.22) one hundred and twelve dollars and twenty-two cents per acre, and it has yielded at least twenty-five dollars per year.

Land that is very rich and highly cultivated should be pastured the first year after seeding, as it has a tendency to thicken the grass. In seeding it is best to use a variety of grasses, as timothy, red-top, Kentucky blue grass, and red and white clover.

One word as to the commencement of underdraining in this country. Robert Givan, a Scotchman, residing in Eastchester, Westchester county, New York, in 1844, commenced a thorough system of underdraining, and I took the idea from him.

GEORGE W. PAYNE, UNIONVILLE.

It is fifteen years since I commenced draining. I have drained about twenty acres, more or less perfectly. I have made five hundred rods of drain, two-thirds of which is filled with stone, within fifteen inches of the surface, and covered. The drain is laid with one stone on each side and a flat one on the top, making a channel for the water; the chinks filled with small stones to prevent dirt washing down; then add bogs or trash before scraping on the dirt. This should be well rounded up so as to turn the surface water from the drain. The main drains are cut as straight as practicable, and where a turn is made the angle must be rounded off, to prevent wearing the drain. Depth from three to five feet if practicable, six feet wide at top, two feet at bottom. If you can get one foot fall in ten rods it will always keep itself pretty clear of dirt. I go over my open drains about once in three years, removing weeds and rushes.

My drains are first cut through the hollows, and deep enough to tap the springs, sometimes four feet or more in depth, sometimes drying the land for a considerable distance. I then cut laterals down the slopes at intervals, and extend them around the foot of the hill, where the wet land adjoins the dry, and cut off the water before it rises to the surface. Having plenty of stone, I prefer to fill and cover all drains, when the fall is sufficient to carry out the sand and sediment; but if nearly level, stones will not answer, as the drains will fill up with dirt.

Soil gravelly, clayey loam, with some small streaks of sand, pretty full of stones, with a thin covering of muck, not in any place exceeding two feet. The swamp was uneven, very full of springs, and covered with alders and swamp brush; almost worthless. The lot cost me before draining, two hundred dollars; now worth one thousand, or one hundred and fifty dollars per acre. Expense of cutting drains about fifty cents per rod, before the rise of labor. The filling I do not make any account of, as it is an easy way to get rid of surplus stone, and I like to have as much of the dirt which is thrown out of the ditch left to mix with the soil, as possible. My subsoil is very hard and tenacious, and I don't consider my lot more than half drained. I find my crops heaviest over the drains, and to diminish as you recede from the drains. To be perfect I would like my drains three feet deep and two rods apart. My drains discharge water continually, even in the driest weather, sometimes in large quantity.

The more perfect the drainage the greater the profit. If twenty-five dollars per acre, expended in draining, will make the land worth fifty dollars per acre, fifty dollars expended will make it better worth one hundred dollars. By laying on from fifty to one hundred bushels of lime, you can raise heavy crops of grass for years without any other manure; the land to be well ploughed and mellowed before laying down. This I know by experience.

After thoroughly draining a piece of land, plough it in the fall and leave it rough to freeze and thaw through the winter. When dry in the spring, put on one hundred bushels of oyster

shell lime to the acre, and you can raise big crops of almost any description, if you have got your land dry. But manure from the barn is almost useless until the poisonous acids in the soil are neutralized by lime; after that manure acts beneficially.

My soil is of the old red sandstone formation. My expenditure in draining has paid me a better profit than any of my other farming operations; in fact I have been enabled to recruit some worn out land so as to have a very good farm for these parts. With my present experience I could have done much more with less expense, and it will pay any man who thinks of draining to get a practical drainer to go on to the ground and plan and advise in the matter before commencing. In fact there is no business that requires more experience to do it right than draining, as it has to be varied according to circumstances. By a drain you can frequently irrigate some ground to advantage, or furnish a good watering place for stock.

JOHN F. BEARD, DANBURY.

One other piece of three acres, nearly level, was drained by two drains through the piece, three feet deep, one and one-half wide at bottom. A course of stones the size of a quart or two quart jug, were set upright on the smallest end, over the whole bottom, then small stones thrown in promiscuously, one foot in thickness, and covered with earth. The water has been running through these drains during the last seven years. But I failed in part in not making three instead of two drains. Soil mostly clay and gravel. Products a good crop of good hay. Cost of this kind of drainage is not great, as there is nothing paid for material, most farmers having small stones they wish to dispose of, and can do the work at odd spells.

DANIEL W. COIT, NORWICH.

In drainage on a large scale, as it has been conducted in some parts of our country, I have had no experience; though

it must be clear to every intelligent observer, that great advantages might be gained by the judicious, thorough drainage of vast tracts of meadows, swamps, and the like, now lying useless, (and worse than useless, for in some cases they are a positive nuisance,) in our own neighborhood, and in all this part of the State. In the immediate vicinity of some of our larger cities, in ours particularly, much has been done in the way suggested, such for instance as taking in hand the roughest kind of rocky swamp land, worth perhaps \$30 to \$50 per acre, and laying out \$100 to \$200 per acre, in thorough drainage, removal of rocks and stones, and converting them into massive walls, thus increasing the value to three or four hundred dollars per acre. Now the men who do this, I look upon as public benefactors; they change the whole face of nature, just where it is most required, from a condition of loathing and repulsiveness, to one of usefulness and beauty, and they put money in their pockets at the same time. A vast field is open for discussion on this subject, but I have no time to go into it.

SAMUEL STOUGHTON, EAST WINDSOR.

My experience in drainage has not been extensive and yet sufficient, I trust, to somewhat appreciate its value.

About seven years since I resolved to bring into cultivation a field of ten acres that had been abandoned by its former owners as worthless for cultivation, as in fact most of it was, from being saturated with water so large a part of the growing season.

Two sides of the lot were already bordered by an old and imperfect ditch, and one of like character ran across near its center, both of which discharged, or were designed to, into a small ravine, entering one corner of the lot, which by the way was a charming provision of nature to receive the drainage of quite a tract about it.

After having made purchase of the lot, (valued at about fifteen dollars per acre,) I carefully viewed and staked it out for draining, with the zeal of a son of Green Erin. Upon one side was a highway. Here I opened a broad ditch, three or

more feet deep, throwing the earth excavated all upon the lot side, so as to form a good permanent fence, with some trees and shrubs planted upon its top; so fencing and draining at one operation, which in many cases may be advantageously combined. Upon most of two other sides of the lot, circumstances made it necessary to make open drains, but across the middle and upon the side adjoining woods, I put in under-drains, making about eighty rods in all; and the lot is thoroughly drained.

The most efficient covered drain is across the lot about midway; its depth at the lowest place of the lot, is three feet, but generally four, and part way, five. It is constructed of stone in form of a box culvert, leaving a water passage about six inches square, with a thin, flat stone upon the bottom, except a few rods where boards were used. This drain has never failed to discharge water since the day it was laid, and most of the time copiously.

The tract is pretty level; soil rather sandy, with a dark coat of mold on top. In length the lot is about forty-five rods, and the stone under drain crosses it about midway.

The above described operation has proved a most perfect success. I own some Connecticut river meadow, and think this lot worth nearly or quite as much per acre as the meadow, and one hundred and fifty dollars per acre would not be above the present value of this new made lot.

Draining in this town has received some attention by now and then a farmer, but there are not more than two or three who have made thorough work of it upon their farms.

I know several pretty extensive tracts in town, besides many small ones, that can never be productive of good, sweet crops until draining is resorted to; and it may be done at a small outlay per acre. To a man experienced in the effects of draining, it seems absolutely penny-wise and pound-foolish not to do it forthwith. But strange as it may seem, many intelligent farmers will not leave the old ruts until glaring examples surround them and drive them out.

If any class of our community need the shock of an earthquake it is the farmers. The board of agriculture can hardly

be expected to act as suddenly as this, yet it is to be hoped that it may vitalize this interest sufficiently to hold old Connecticut in the line of improvement.

SAMUEL W. BARTLETT, EAST WINDSOR.

I commenced about 1850 to open drains and lay tile; the drains are not near enough to each other to specify a given number of acres, but are laid in reference to benefiting a large, tolerably level lot on rather a limited scale. The number of rods laid, about one hundred and twenty-five. The tile used, the horse-shoe variety, made in an adjoining town, laid on boards six inches wide or more; depth, two and one-half and three feet on an inclined surface; running directly down to an outlet; soil below the surface, a stratum of bluish clay, impervious to water; land generally used for mowing, but occasionally cultivated with corn and tobacco. The productiveness of the ground has been increased twenty-five per cent. or more; drains remain a permanent improvement, with occasional repairing when a tile gets broken. The cost per rod at the time of laying was about seventy-five cents, the work being performed much cheaper then than it could be now. When the ground has been broken up over these drains, the subsoil plough has been used with great benefit.

ELIAS SEVERY, WILLINGTON.

I commenced draining in 1840; drained two acres; level land with open ditches; soil, peat-muck; width of ditches, three feet; depth, two feet; distance apart, four rods; before draining, very unproductive; afterwards, one-half acre was ploughed and produced two crops of potatoes, one of oats, and two good crops of English hay; it then became meadow grass in light quantities.

On the remaining one and a half acres I carted gravel and manure, which I spread on the surface with grass seed. It yielded a good crop of English hay, and continues productive to the present time.

T. B. WAKEMAN, WESTPORT.

I commenced draining thirty years ago. I have drained more than thirty acres, and made from two thousand five hundred to three thousand rods of ditch, mostly covered. I have five acres drained with tile, laid on boards, where the ground was nearly level, but most of my drains are filled with stone. When I commenced draining thirty years ago, I had not much experience in the business. If I had then known what I now know about it, I could have made a great deal better work. One object in draining is to cut off the surface water, and to do that the drains must be made above the springs, sometimes straight down the slopes, or obliquely, or directly across. I have drained one swamp of six acres, four acres of which, before it was drained, was a pond of water, both winter and summer, and cattle never ventured on it. It was the first of my draining, and I did not get so much descent as I ought. It was so soft and mucky I could run a pole down ten or fifteen feet. I cut a drain through the center and all around the banks, so as to cut off the springs, and cross drains from the center to the border drain, four rods apart; but I think the cross drains were unnecessary, for there were no springs in the center; the water all came from the upland. I intended to have my center drain four feet deep, but I found the swamp settled one foot after draining off the water; therefore I did not have so much descent as I ought to have had. The border and center drains were bridge drains. Before it was drained, this land was not worth ten dollars per acre; now it is worth two hundred dollars per acre, and bears good crops without manure.

Stone drains are cheapest where you have sufficient fall. If properly made and cared for, they stand well; but if the land is nearly level, tile is cheapest in the end, although the first cost is more than double that of stone drain.

Before we commenced draining our swamps and lowlands, a whole family were sick at one time with fevers, and I had the fever and ague three years in succession, but since that we

have had nothing of the kind. I have no doubt that it has added to the healthfulness of the place.

D. G. WARNER, SALISBURY.

In 1858 I laid about ten rods of stone under-drain; dug the ditch two and one-half feet. It operates well, but would have been far more effectual if I had dug the ditch much deeper.

I have made inquiries of farmers who drain a little every year, and have become satisfied that it is one of the most useful improvements the farmer can make. The great object now is, to ascertain the most effectual and cheapest method of doing it. Of course if the farm is superabundantly supplied with stone, they will be used instead of tile. One farmer in this town informs me that an effective drain is made by digging four feet deep and dumping in cobble stones to the depth of two and one-half feet; this is the cheapest mode. Another mode which is recommended as the cheapest and best is to select long stones, small at one end, and stand them upright in the ditch, small end down, and cover with straw or leaves and earth.

Another farmer, and a capital farmer he is, Mr. Curtiss, of Lenox, Mass., recommends laying the stone in this way: place longish stones firmly against one of the sides or banks of the ditch; then lay flattish stones resting on these, and on the bottom of the ditch, on the other side; then fill up as before. Mr. Curtiss says that from actual experience this is the way to make drains.

D. H. WILLARD, NEWINGTON.

I commenced draining about the year 1850, and have succeeded in draining about twenty-five acres. I have constructed about three hundred and fifty rods of drain, nearly two-thirds covered, and the remainder open. The covered drains are about three-quarters laid with tile, of different sizes, according to the quantity of water and the slope of the land; horse-shoe tile, from two to six inches in diameter; the remaining one-third are laid entirely with small stones. My

way has been to lay up square-edged stones on each side of the ditch, at the bottom; then cope across with flat stones, and fill up with cobbles to within twelve or fourteen inches of the surface. I now put in a layer of straw or coarse hay, to keep out the dirt; then round up with dirt taken from the ditch, and sow on grass seed.

Where there is considerable fall and the stones are abundant, I find this a good way to dispose of them; even in some of the tile drains, where stone are plenty, I fill them in compactly to within about a foot of the surface; then cover with straw and earth, thus increasing the capacity of the drains. Some of the drains run directly down the slope, to carry off the water from some wet, springy spot; while others are cut obliquely to conduct the water to the main ditch near the center; while others again, run across the upper part of the slope, to cut off any water that may flow down from higher lands. The water thus collected by these several drains is discharged into an open ditch, by the side of a division fence, at the lower end of the slope. The dirt and turf being thrown under the line of the fence, it requires but two or three rails to make it impassable for any kind of stock.

Open drains on upland are three feet wide, and from two to three feet deep; in swamps where a two-fold object is to be attained, both draining and securing muck, we usually dig six feet wide, and as deep as can be conveniently thrown out. This muck, after lying a year or more to dry and pulverize by the action of the frosts of winter and the heat of summer, is carted away and composted with other manures in the barnyard, pig-styes, and under the stable-floors, to absorb the juices that would otherwise be lost.

We have often used it clear, as a top-dressing for meadows newly mown, with marked effect, in a luxuriant growth of rowen, and material increase of the crop the following year. The muck is much improved by mixing with shell or quicklime.

As to the distance apart of the covered drains, they vary according to the quantity of water, and more, the amount of slope or fall in the field to be drained, say from three to twenty

rods. A drain should have a regular descent or fall from one end to the other, and an unobstructed outlet at all seasons of the year. If the bottom of the drain is undulating, as is often the case with the surface of the field, the water will stop in the lowest places, and sand and earth will accumulate and entirely clog up the drain.

Lands that are thoroughly drained will increase in their productiveness from fifty to three or four hundred fold. Some places that were almost impassable for man or beast, by reason of the mire and bushes, have become some of our best meadows, so dry and solid that teams with the mowing machine, tedder, horse rake, and the loaded cart can pass over safely.

SOLOMON MEAD, NEW HAVEN.

I commenced draining in 1852, and have drained eleven acres, more or less. Ditches open; from one mile to a mile and a half of ditch. Soil, muck; surface nearly level; breadth of ditches, from four to eight feet; depth, from four to six feet. Field, before draining, overrun with excessive moisture and bushes; valuable productiveness increased by the drainage. The only failure arises from the refilling of the drains, and from the fact that there is a constant saturation of water from the stream passing through the same. The amount of water drawn from the soil adjoining the drains is not very large, except in connection with the springs it relieves, yet the amount of water in the drains is large all the year. The daily rise and fall of the tide has so much influence in setting back the fresh water stream which flows through the meadow I have ditched, that it makes any attempt at perfect draining a failure, as the water is every day within two feet or less of the surface.

The chief object of my draining has been to secure the muck from the drains, and for this reason they were dug so deep as to be two-thirds full of water all the time, as well as so wide; at the same time every advantage in carrying off excess of water within the influence of the drains has been realized.

But I do not regard my experience in draining of any practical value to the farmer whose object in draining is simply to remove the excess of water so commonly found in the cultivated soils of New England. However, the subject of thorough drainage is of the utmost importance to all who have moist soils of cultivatable land.

Z. L. HUNGERFORD, MOODUS.

I commenced draining twelve or fifteen years ago; have drained two pieces of swamp, of three or four acres; drains both open and covered; the latter laid with stone or tile; tile laid on a chestnut board, six inches wide; the tile obtained from Albany, landed on Connecticut river, thence carted four miles; two and one-half inch tile, cost in Albany twelve dollars per thousand, and eighteen dollars for four inch tile, fourteen inches in length.

Before draining, the land was so wet that it was necessary to pole off the hay by hand, as cattle could not go over it, even at the driest time. It yielded a good crop of almost clear joint rush, such as grows upon our fresh water river marshes. Since draining, I have raised corn; one acre of it the largest I have ever seen in this vicinity; tobacco, mostly a good crop, and since then, timothy, yielding at two cuttings, three or four tons annually.

In commencing to open a drain, it is necessary to get a sufficient fall for the water at all times to pass off freely. The depth should in no case be less than three feet, better three and a half in most soils, so as if possible to have the flow of water in a strata of hardpan, or harder earth below, as this affords a better channel for the water, and when drained it generally becomes the most porous of the whole. Width of no account, only if a board is used upon which to lay the tile that there may be room for that, and if for stone, of the width of a shovel on the bottom. The width at the top to be governed entirely by the convenience of digging.

I put a chestnut board under the horse-shoe tile to secure an even passage for the water, and to prevent the displace-

ments that may arise from settling unequally in consequence of the unequal hardness of the bottom. In laying drains with stone, I prefer those of an even size, but any will answer, such as we consider too small for wall. If the bottom is soft, lay flat stones first, and then smaller ones on top, but there should be at least two feet of well-settled earth on top; before putting back the earth, I cover the stone with straw, old hay, or shavings, or any thing to prevent the earth from getting among the stone before it settles firmly together.

In filling drains laid with stone, more care must be used than when tile is laid, as the stone are nearer the surface, and water from the top is more liable to wash in earth and obstruct them, to avoid which they should be dug a good depth so as to have as much solid earth as possible above the stone, and then in filling in it is generally best to begin and break down the sides about even with the top of the stones, thus allowing the earth to settle firmly over the whole top. If there were sods from the top of the ditch, put them inverted upon the stone. By thus breaking down the banks in filling a stone drain, a very frequent cause of obstruction is avoided, viz., the irregular settling of the earth, caused by adhesion to the perpendicular sides of the ditch and projecting stones, at which points the earth remaining loose, the water from the surface finds its way down, often causing serious difficulty.

Except for a large flow of water it is best to cover all drains, as it is a constant care and much expense to keep them open, besides being obstructions to tillage, and unsightly.

When much draining is to be done, it is decidedly better to lay with tile, unless there is an abundance of suitable stone that must be disposed of in some such way. By digging and laying immediately, much expense and trouble of clearing out is avoided, and in no case should a ditch designed to be covered, be left open during the winter.

As to the distance apart of drains, and their direction, whether directly down or across the slopes, no general direction can be given. The size of the area to be drained, the sources from which the water makes on to it, its descent or slope, the natural outlet for the water, the quantity to be car-

ried off, the make or nature of the surface, and of the subsoil, and many other peculiarities of the place, require to be taken into account, all of which will be likely to be noticed only by those familiar with such work. As upon most farms only some small places are thought to need draining, or to pay for the outlay, the result is, most farmers know practically but little of this branch, which in fact may be considered a specialty.

SAMUEL DEMING, FARMINGTON.

About 1830 I commenced draining ten or twelve acres of swamp land, covered with bogs and small underbrush. The land was so wet no animal could go upon it. The ground is level, and the muck is from one to fifteen feet deep. The plan I adopted was to cut drains on each side of the plot, and a main one through the middle, with cross sections. The side and cross drains run into the main drain, and thus the water was carried off in abundance from the land. After getting the drains in working order, I commenced cutting off the bogs and brush, and carried them on to the high land, where they were burnt, and the ashes used for manure. After removing bogs and brush, I sowed on grass seed, and as an experiment, applied manure on some portions, which showed its effects in producing large grass. From the nature of the soil, the drains are open.

At first I cut the bogs with a hoe, but last year I went over the piece with a machine bog-cutter, which left the land so smooth that I mowed a good portion of the meadow with a machine, the Buckeye.

When I commenced to drain this land it was worthless; now it is a valuable meadow, cutting large crops of hay. Some years since, I received the premium of the Hartford County Agricultural Society, for reclaimed land.

The surface of the meadow has settled about twenty inches since I commenced to drain it, and while at first no animal could go on it, now we drive all over it with loads of hay and manure.

I had another piece of land that I mowed, but portions of it were so wet that the hay was dried with difficulty. About twenty-five years since, I opened drains through the wet portions, which were descending. These drains were filled with small stone, and covered with soil. Water runs most of the year; ground dry and hard; quality of the grass improved; soil a clay loam; drains have always worked well from the first; depth two to three feet, and same width.

About twenty years since, one part of my home lot of about one acre was quite wet, so much so that often we had to take the hay off on poles. I opened three drains, so as to meet near the outlet. These drains were dug three or more feet deep, and of the same width. I placed stone on the bottom, laying one on one side, and another resting one end on this, filling on top with small stone, and covering with soil. The water coming from springs runs constantly throughout the year. The drains have all worked in the most perfect manner, and have never been out of order. Since draining we drive over the ground to get the hay, and mow with a machine. Quality of grass greatly improved, and quantity increased. Soil a clay loam; ground a little descending. Never had any experience with tile, but think I should prefer stone where readily obtained.

WILLIAM OSGOOD, POMFRET.

The farm I am now on I have owned about six years. I commenced draining the first year; I dug a main ditch through the lowest part of the ground I wished to drain, and then dug branches at right angles to empty into it. The land was but little inclined, just enough to carry off the water. My success was complete. It was a springy, poor piece of land, producing sour bog grass, but is now as good land as I have on my farm. My ditches were two and a half feet deep, and about two feet wide at the top, but narrower at the bottom, or about as narrow as we could comfortably work in.

When the ditches were dug, we took flat stones and set them up edgewise, letting them lean together at the top, in the shape

of an inverted V, then filled in upon the sides with small stones, then covered with old hay or straw, and lastly leveled off with dirt. I think two and a half feet none too deep, and on some land three and a half or four feet would be none too much.

E. KINGSBURY, COVENTRY.

In this town and vicinity but little has been done in draining land. I have some tillage land that is rolling, the edges of which are wet, and I have laid perhaps forty rods of drain along near the hollows, with very good effect, though but recently done. Some few others in town have done a little, much in the same way; our soil is mostly a black loam, with a yellowish subsoil, coming to hardpan in from eighteen to thirty inches. I dug my drains about two and one-half feet deep, and eighteen inches wide, laying cobble stones on the sides, covering with flat stones, and then filling in with small stones, as near the surface as I could, and not interfere with ploughing. This, if all the work is reckoned, costs perhaps one dollar per rod, but I fill with stones to get them out of the way, and do not count the work except the digging, which costs perhaps fifty cents per rod, these times. I have no doubt that these drains will be permanent.

F. A. ROCKWELL, RIDGEFIELD.

I commenced draining in 1850; improved two and a half acres with about one hundred rods of ditch, three to four feet deep, and filled with stone, those laid in the bottom resting against each other, so as to leave a straight water-course in the center, and then covered the small stones with bog hay or straw, the stones being within about sixteen inches of the surface. The surface is inclined, and the ditches usually run obliquely, but always so as most effectually to cut off the springs from above. This, as all other business, requires observation and judgment. The soil two feet below the surface is a kind of clay and gravel, what we call hardpan. My

drains are all perfect, and discharge the water well, and make living springs in some of them. I think the value of my land is about doubled in productiveness by drainage. Within the past two years I have made about three hundred rods of ditch, on about ten acres; all laid in the same way, with about the same results; always being sure to cut above the springs as they appear on the sloping ground, and where it is quite flat I ditch all round it, so as to cut off all the springs, and cross-ditch as is needed. On this tract the subsoil varies; some sandy; some gravel, and some hardpan. I have never cut a ditch but what I thought it paid. I estimate the expense of ditching and filling with stones, covering, &c., at about one dollar per rod; ditches say three and one-half feet deep, two and one-half feet wide at top, and fourteen to sixteen inches at the bottom.

ASA HUBBARD, MIDDLETOWN.

In 1841 I drained about one acre of land on a side hill, with a gentle inclination. It was so cold and wet as to produce bog-sage, alders, and poison sumach. I cut two ditches lengthwise, three and a half feet deep, fifteen inches wide at the bottom. I then placed three rows of stones on the bottom, so as to make an open channel; then small stones two feet deep, filling the crevices with broken stone; then a layer of straw, and then filled the ditch a little rounding with earth. I seeded the land to grass, and cut from two to two and a half tons of first rate hay per acre, for six years, when I sold the land. It has borne good crops ever since, and the land remains dry, never having been disturbed.

My next experiment, also in 1841, was in draining a basin of about three-fourths of an acre, which received the water from fifteen or twenty acres. The water stood in the basin all winter, and about half the summer; consequently, nothing grew there but coarse grass and rushes. I dug a well nine feet deep, in the lowest place, and came to living water. The water rose two feet in a few minutes, and there it stood; the rains could not raise it, nor the drought lower it. I dug

drains at right angles; that is, I scooped them out, leaving them so that I could mow across them. I seeded the land to grass, and it has produced a bountiful crop ever since, and at this time it is sufficiently dry for corn or wheat.

I am of opinion that the best way to drain flat land is to dig wells to living water and then to cut drains leading into them, either surface or under-drains. You can stone the wells, or fill them with small stones. I fill them with stones. My experience establishes the following general rules for draining: make your drains straight down the hill; fill the ditches rounding full; never allow surface water to enter the ditches.

E. M. & J. E. LEE, GUILFORD.

We commenced draining in 1850, and have constructed some five hundred rods of ditch, filled with stone and covered. We place grass or leaves over the stones to prevent the soil from falling among them. These drains are mainly on an inclined surface and run obliquely, as it is our opinion that the drains should not be constructed to run directly down the slopes.

The lands so drained are composed mainly of gravel and clay, and this method of draining is believed to be better adapted to these soils, than to such as are composed of sand and muck. These drains are from two to four feet deep according to the depth of springs—two feet wide at the surface and ten inches at the base.

The channel at the bottom of the ditch is triangular in shape, six inches wide at base and six from base to apex, resting upon hardpan bottom.

We constructed a few rods of *blind* drains, so called, without the aforesaid channel, and it was a failure, discharging little or no water. The other drains—some of which have been laid sixteen years—are in fine condition and completely secure the end arrived at, viz: an entire drainage of the land, where they lie. One small field of three acres, which prior to drainage yielded a coarse description of grass, the annual value of which approximated to \$40, now yields without ad-

ditional fertilizers, timothy hay of an annual value of at least \$100.

Average cost of drainage as above, \$1.50 per rod.

HORATIO HOLMES, STAFFORD SPRINGS.

I will give you my experience in draining about four acres, with a handsome slope, springs running in on every side, with a brook about four feet wide running very crooked, through the lot, leaving it worthless.

I commenced at the foot of the hard land and plowed and scraped the earth over the wet ground till I got a channel for the brook. This took the surplus water on that side, and a similar one on the other completely drained it. I then filled the old channel with stones, to clear other lots, and covered them with turf. Every fall, I turn the whole stream over the wet ground. It is now ten years, and this is the best lot on my farm. It was the greatest improvement I ever saw with so little expense.

ALBERT DAY, BROOKLYN.

The soil of my farm is mostly of two kinds, a brownish red loam, excellent for grass and the smaller cereals, and a dark, deep loam resting on a tenacious sub-soil approaching hardpan, on which I cut my largest crops of hay ; the latter of which is the kind of land drained.

It has a gradual descent to the north and east, sufficient to give a good draught to drains. Part of this was highly charged with water in the wet portions of the season, rendering it almost unfit for cultivation.

I commenced draining in the autumn of 1857, upon two acres of land in a lot of four and three-fourth acres, (the remaining portion being dry,) at a cost of about one hundred dollars. The lateral drains were laid out at right angles with the main drains, two rods apart, and ran directly across the slope.

A common plow was first used, turning three furrows together, and after that was thrown off I used a sub-soil plow, running it fourteen or sixteen inches in depth ; the remainder

to the depth of three feet, by two feet in width was picked and thrown out with a spade or shovel.

The sides of the drains were stoned up, leaving an opening about four inches in width by eight inches in height, to give the water as much force as possible in order to keep it clear of sediment or choking. A covering of flat stones was then put on and the whole filled with small stones to a depth of eighteen inches from the surface.

The next operation was to place three or four inches of refuse stones in the drains before covering, taking great care to have the whole nicely packed to prevent the dirt from washing in. I have known this part of the lot formerly to be heavily top-dressed, and in three years could perceive no effect from it, and in plowing for corn or oats I was obliged to leave it until June, when the water at times would follow the plow. The result was no crop or a very poor one at best. Since draining, I have harvested equally good crops from this portion of the lot as from the remainder, viz: sixty or seventy bushels of corn, fifty bushels of oats and three tons of hay per acre.

The appearance of the lot from a short distance after plowing would convince the most skeptical of the benefits of draining. The drained parts appear quite dry, the rest more like a sponge filled with water.

The length of time the drains will flow, and the amount of water discharged, depends upon the season. It flows about eight months of the year, and commences in from two to four hours after a heavy rain in the summer. At some portions of the season it would hardly pass through a hole three inches in diameter with a slight fall on the surface.

The rest of my draining, comprising the wet portion of two other lots and about eight acres in all, was done two years after the first mentioned lot, with equally beneficial results, increasing the production from one hundred to one hundred and fifty per cent. by ordinary manuring and cultivation.

Before draining the last two mentioned lots, eight or ten tons of hay was a good return, a large part of that being of poor quality; since that, from twenty-four to twenty-six tons

of the best quality have been harvested annually. I have laid two thousand tiles in the lateral drains, at a cost of eighteen dollars per thousand at the depot, three miles distant from my farm.

I prefer a tile drain to a stone one at the same cost. Great care is necessary in order to keep the soil from sinking or washing in, on a stone drain, and mine have done so in places, although without obstructing them. I ordered my man to examine one of the places just below the drop. The drains were found not to be obstructed much, and they work as well as when first laid. Where stone drains are put in, the expense is twice or more that of a tile drain.

When done by the job, I have paid fifty cents per rod for digging the former, and twenty-five cents for the latter. Then the expense of hauling the stones, (unless near by,) and the laying, is not much short of the price of digging tile drains, and these are always sure when properly laid, and have a good outlet.

I have commenced the draining of six acres more, very wet and low, with a great quantity of water passing through it after heavy falls of rain, and hope to complete next autumn, if labor and material can be had at reasonable prices.

I estimate the cost at four hundred dollars for the whole, and am sure of a dividend of one hundred per cent., as most of the field is nearly worthless in its present state.

I am thoroughly convinced of the truth of the statement of that veteran drainer, John Johnston, that whoever will drain a few acres, can, by the increased production from them, drain all that needs it upon a farm, and grow rich by the operation. The cry "more acres" has ceased among the more intelligent portion of farmers, and now is "better acres." There are no improvements in agriculture equal to thorough drainage, nor is there any compromise between water and a good crop. "*It must be fought out on one line,*" and that a dry one. Still, many farmers are slow to believe in the great benefits arising from draining, and, in many instances, it has met with decided opposition and ridicule. But why should there be any fear, when there are hundreds of the most intel-

ligent farmers in New England who can give results from drainage equal to those stated, and upon which one is sure of a yearly dividend of from 100 to 200 per cent. ?

Banks may fail, stocks be dull, and currency be at a heavy discount ; but in draining, there is an investment that never fails of great dividends.

Furthermore, the result is pleasing to the eye, and often prevents malarious diseases, incident to low, marshy land.

I am satisfied that there is no subject connected with agricultural improvement that should more deeply engage the attention of the Connecticut State Board of Agriculture than draining.

GEORGE SANGER, CANTERBURY.

Draining is a work that I have attended to, more or less, for nearly twenty years, and I have drained about twenty acres. I have worked away at it with my regular farm hands after haying, and in the fall after harvesting.

I have both open and covered ditches ; have only used stones ; have never laid any tiles. I have some forty rods of the main drain walled up on both sides with large rocks, gathered from my fields and the adjoining highway. This drain is not quite two feet wide, and much of the way four feet deep. It was walled about eight years since, and has remained firm, though it requires to be cleared of grass and sediment once in two years. I should have covered this drain, but flat stone do not abound on my farm. Yesterday was a day of high water, and then there was water enough going out of my meadow to fill an aperture of two feet square ; but it did not last long ; to-day, it will pass through a space less than one foot square.

I have, probably, three hundred rods of drain laid with stone. Our stone are rough, and of all shapes and sizes, and it is difficult to find flat stones to lay the walls. I like to use good-sized stones, say as large as a peck measure, and as the bottom is hard sand or clay, they will never move ; then cover with flat stones, and chink up with small ones. Sometimes I gather small stones from my fields and dump them

into the ditch, and then cover with the soil and sand thrown out.

The sluices in my drains are from six to twelve inches square, according to the amount of water to be discharged. The land I have drained is nearly level, surrounded by gradual elevations, rising higher at the north, thus well exposed to the sun. The outlet of my drain is towards the south, first into the highway for about twenty rods, it having been prepared to take away the water by furnishing hundreds of loads of rich, decomposed vegetable matter for the barnyard, making my outlet complete; thence, for about twenty-five rods further, through a piece of rugged pasture, where I obtained sufficient fall to take the water away. Here my work commenced; for as many as three different times I settled my ditch through this pasture, some of the way from six to eight feet deep; the last time, as I dug the drain, I stoned and covered it, and threw the gravel and spare stones upon the drain. Though this work was done at the commencement of my experience, it still remains, to this day. I have since built a house close by it, and have plowed over it many times without injury to it. Of all the drains I have laid in this manner, not one has failed or given me any trouble. I have laid some thirty rods this fall. Nearly every rod of drain on my farm has been laid by myself, as I have felt it was a kind of work I could not altogether trust to hired men.

A number of acres of the land which I have drained was very wet and miry, not firm enough to bear an ox-team. I have known it for thirty years and over, and in all this time it has not paid for mowing. It was formerly, no doubt, a maple swamp; now, on this same ground, I raise timothy and red top; and mow with horses, and the appearance of the meadow and the adjoining land is entirely changed. Most of my drained land I have plowed, using "Gibb's Cylinder Plow," which is well adapted to the purpose. Some of my ground I did not plow but once, but put manure on the furrows, then worked the ground smooth and put on grass-seed, with good success.

Gravel or sand, when it can be easily obtained, is very excellent for wet land after the water is taken from it. Dump a cart load in a place and spread it about, then put on manure and grass-seed, and good results will follow.

In draining, one must continue to open ditches till the ground *is made dry*, the number and distance apart depending on the character of the land to be drained. As a general thing, I find drains can be dug and stoned better before the land is plowed than after. I would have no open drains, if I had convenient material to fill them with, and I would not dump small stones into a drain or ditch, except where there is very little water to be conveyed away. Where there is much water, I would lay a drain with a sluice.

DAVID C. WHITTLESEY, NEW-PRESTON.

I have for the last twenty years, or so, paid some attention to the subject of drainage. My first experiment was with a swamp of about three acres, surrounded on all sides by high land except at the lower end, with sufficient fall to carry off the water freely. Sub-soil clay and gravel, very hard, with fifteen inches of swamp mud. I first surrounded it with an open ditch, then cross ditches. Where there were springs, I dug ditches to them, until I thought it well done, and sufficiently so to drain it effectually. The result is, it is a swamp still, good for nothing, and the expense of ditching a waste and thrown away.

The same season I ditched another piece that also lay on high land, with much the same result; it did no good.

My next trial was some years later, on a piece of intervale meadow, lying low, and kept wet in great measure by springs from the adjoining fields of high land. In this case I made stone drains, with an open channel, which carried off a good deal of water, and improved the field considerably; but woodchucks and other ground animals interfered with the flues very much, so that it needed constant attention to keep them in working order, and at best not very good mowing. Not satisfied, I got tile from Albany, and laid about four rods

apart in ditches all over the field, which has much improved the quantity and quality of the grass. The descent is very little, the bottom of the ditches obstructed by large stone, so that occasionally they get choked up.

I have also laid tile on steep side-hills to carry off springs; but they soon choke up, and do not answer a good purpose. I have used cobble stone in such cases, and they do well. I much prefer them in such places to anything else.

I have made in all some five or six hundred rods. The open ditches I count an entire failure. The stone with flues have not improved the land enough to pay the expense of making. The cobble stone have answered a good purpose where I have laid them on side-hills for a specific purpose. The tile have done the best, and are tolerably satisfactory.

What I have said of my own experiments, I think will apply generally to others in this town. There are but few pieces of swamp that have been entirely reclaimed. Where any benefit has been had in such cases it has been from large open ditches, the muck being too deep to allow of covering.

One piece of peat swamp that lay in a basin like between high land has been completely redeemed by removing about a quarter of an acre in the center to the depth of four or five feet, making an artificial pond; the muck taken out said to pay for removal on to the adjoining fields.

Another way that is practiced to some extent, is to throw up the surface into beds twenty-five to forty feet in width. This answers a very good purpose where the land is sufficiently dry to do it with a plow in a dry time, and there is sufficient fall.

There is in this town a kiln where tile are made and sold at Albany prices. Since the establishment of this kiln, a good many tile have been used; mostly, however, in small plots of wet ground lying in dry fields, and with success.

The most extensive and successful drainage that has come under my observation is just over the line, in the town of New-Milford. A few years since a man bought a farm on which was a tract of twenty or twenty-five acres of low swampy land. He ditched it thoroughly, laying timber flues at the

bottom, and covered over; lowered the outlet sufficiently to let the water flow off freely. The result was a complete success. The original difficulty appeared to be a want of outlet. That once opened, the water drained off like tapping a tub at the bottom to let out the water.

In conclusion I would say that from my experience and observation I am of opinion, that in order to get any or partial benefit from draining, a sound discretion should be exercised as to the nature of the soil in its natural state, and whether it will be worth anything after draining.

H. S. COLLINS, COLLINSVILLE.

In giving you my small experience in Drainage, I find it necessary to leave the form of questions you have adopted and give you an account of two plots drained.

In the Autumn of 1860, I decided to attack a small piece of apparently level land, of about one acre, lying on an elevated plateau, or terrace of the mountain. On the north side was a lot partially cleared of stone and under cultivation, and the fields south and east, one a stony pasture, the other a half cleared wood lot, I also intended to subdue. The plot in question was for the most part a swamp, covered with low bushes and extremely stony, indeed I might say it was *filled* with stone, of various sizes, but including few very small ones. The natural drainage was towards the west, through a swamp of similar character, through which ran a little streamlet whose channel it was necessary to deepen. I could however drain a part of it towards the east by deeper cutting.

My first operation was to pull the bushes, and clear off the stone into walls. This labor almost discouraged me, there seemed to be layer upon layer of stone, some of them requiring blasting, and the lifting and drawing of the stone, in soft ground, and among holes full of water, was a work of much difficulty. But for the fact of its lying between cleared fields, and the necessity of laying a lead pipe across the ground, I should have given up in despair. The work was finally accomplished and heavy wall constructed on three sides, varying

from six to eight feet in thickness at the base, and about four feet in height.

The piece thus cleared, I now prepared to drain. My first work was to enlarge and deepen the channel of the brook, and to open ditches from it to the ends of my contemplated tile drains. The other ditches were then dug and two inch sole tile laid on the subsoil at a depth varying from two and a half to three and a half feet, the lowest grade being about one eighth inch to the foot, or two inches per rod. The joints were covered with the turf from the bogs, a mass of fine roots, admirably adapted for this use. The tile had to pass under all the walls, but the labor of ditching in the cleared field, was less than I had anticipated. The drains were laid out to suit the peculiar circumstances of the case and had little reference to each other, there being no parallel drains. There were about forty rods of tile laid, and twenty-four rods of open ditch. The cost being as follows,

Ditches, (open and tile,)	-	\$64.00
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Tile, \$9.00 laying and covering, \$7.00	16.00—\$80.00
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I say nothing of the cost of clearing off stones, as foreign to the present purpose. In the soil of the swamp I was disappointed, there being but little depth of vegetable matter, and too many stone remaining underneath for profitable cultivation, but it gives promise of being permanent grass land, and bears a quality better than any on my farm save one piece, also drained, to which I shall soon refer. The subsoil varied, being sometimes sandy, at others a yellow hard-pan, at others almost a clayey sand, but always mixed with stone. This piece of ground was originally covered with low bushes, filled with stone, and entirely unproductive. When cleared of stone it could not have been plowed save in the driest season, and would never have borne grass of any value. Now it is cut and raked by horse power, and bears a heavy burden of fine grasses, the wettest places rather inclining to white clover. The grass is particularly thick at bottom, and the yield as large now as when first seeded down. The open ditches need clearing every season, as the sides cave in with the action of the spring frosts. The drains discharge throughout most of

the year, the one to the east flowing sufficiently to attract cattle as a drinking place.

The second piece drained was the west end of a field of five acres, sloping to the east. Immediately behind it rose a steep rocky ledge, covered with trees, and often wet with springs. The upper, or west end of this field, lying under the ledge, was not wet except early in spring, but it was unproductive. The only fair crop I ever obtained from it being of Oats. When in grass, most of it was coarse, and it deteriorated every season.

In the end of May, 1863, I made a thorough examination by sinking holes three feet deep in various places. Only a few of these showed standing water, but I was fully satisfied of the necessity of draining. A head drain, cutting off the springs, was impracticable, the top being the driest portion of the piece.

In this plot of about three quarters of an acre, sloping gently to the east, I laid five parallel drains, about twenty-five feet apart, and two and a half feet deep, the bottom drain being somewhat deeper. The slope was sufficient for free discharge. I made the north drain the longest and the others shorter in order, all terminating in a bottom drain, running obliquely across the hill, or from south-west to north-east, the others running east or directly down the hill. This bottom drain discharged upon a dry gravelly knoll immediately below. In these drains I used two inch sole tile, covering the joints with turf. There were forty and a half rods of tile laid costing in all about one dollar per rod.

In the Autumn, I seeded down with one and three quarters bushel Wheat, and one bushel Red Top, using fifteen bushels of bone dust as manure. The wheat mostly winter killed, but the growth of everything, wheat, weeds and grass was great, lodging badly and forcing me to cut nearly all for hay. In some spots the grass was killed, and I raked in grass seed the next season. What little wheat I saved was large and fine, and brought a good price for seed, some coarse grass grew at first on the bare spots, but soon the fine grasses took full possession and it is now the best piece of mowing I have,

being especially close at the bottom and of unusually fine quality. It almost always lodges in waves and whirls, making bad work for either mowing machine or scythes, but yielding a heavy burden, and showing as yet no signs of giving out. The soil is like most of ours here, a light gravelly loam, with a subsoil of yellow stony hard-pan.

JOHN JOHNSTON, NEW GENEVA, N. Y.

I commenced draining in 1838. I have drained two hundred and eighty acres, all laid with tiles; do not know how many rods. Have laid over two hundred thousand tiles, but my main drains had all of them two rows of tiles and some three rows. For instance: I have one main of one hundred rods that has two rows of four-inch tiles set so far apart in the rows that a nine inch semi-circle tile could be safely placed on the top of the four inch. Then I have one hundred and fifty rods of main, with two rows of five-inch tiles for fifty rods of the upper end; the lower one hundred rods has one row of nine-inch semi-circles, one in the bottom and one on the top, making a tube for the water to run through. That plan I like much.

Drains should run directly down the slopes. You never can make thorough work by running the draines across the slopes.

My drains are from twenty-five to perhaps forty feet apart; very few of the latter, generally about thirty-three feet. In soft soils, and when you have to go four feet deep or over before getting a hard bottom, drains might be fifty or sixty feet apart, and dry the land perfectly, while in stiff clays, eighteen or twenty feet apart may be rather too wide.

I do not think tiles should be less than two and one-half feet deep, but if a hard bottom is not found at that depth go down till you find a hard bottom. Main drains should be from four to six inches deeper than laterals.

I could not state the annual value before and after draining. When we had no thaws in February or the first half of March with alternate frosts, I could get good crops before draining, but such seasons came but seldom, and I know that

it was a safe calculation for me to estimate, that the excess of two wheat crops after drainage would amply repay all cost of the operation.

I filled in the earth with the plow, having a nine and one-half feet double tree, strongly made every way, and a horse walk on each side of the ditch. In this way they are rapidly filled up. I took up the first drain I laid after the tiles had been down for over twenty years, and I found the tiles as good as when first laid. I took it up so as to make it deeper so as to draw water from another part of the field. I kept a few of these tiles to show. After having been buried under ground for over twenty years one of these tiles was taken to Indiana, one to Kentucky, and one to Maryland. Men then came from a great distance to see me on draining—one gentleman from South Carolina. After a long talk on draining, he left money with me to buy him a tile machine and forward it there. Tiles and labor were both high when I commenced draining, but I soon got them down; two and a half to three inch tiles costing about eight or nine dollars per one thousand pieces of fourteen and one-half inches in length, (I paid twenty-four dollars per thousand for the first three thousand). Although I have paid as high as twenty-five cents and board per rod for digging drains two and one-half feet deep, yet I got the great majority dug at twelve and a half to fifteen cents per rod without board. The lateral drains need not be over thirteen inches wide at the surface, and wide enough to let in a two or three inch tile at the bottom. Main drains cost much more.

Draining is the starting point for successful farming. I saw for some years before I commenced, that I must either drain my land or else I would never get it paid for. I sent to Scotland in 1835 for specimen tiles; none were made in Great Britain till 1821, and I sailed from that island on the 14th of March of that year, and of course had never seen tiles for draining until I saw those I sent for. They got here in January, 1836, but I could get no one to undertake to make them until the autumn of 1838, when I got a potter by the name of Benj. Wharterly of Waterloo, to make me three

thousand, which he moulded by hand over a round piece of timber. They were what are called the horse-shoe tile. I suppose pipe or sole tiles were unknown at that time in England or Scotland, and I drained two hundred and eighty acres of my three hundred and six acre farm, twenty-six being in timber, and I have found them to answer my most sanguine expectations. I can recollect of but three instances where I had a single tile to replace; two of these were caused by a rapid descent in the land, so that the earth was washed from under one tile at each place, and the tile was raised up on end, stopping the water. The other break was caused by three tiles that had some small limestones burnt in them, which slacked and crumbled to pieces when they got wet, all the others are as good and efficient as the day they were covered up, for anything that I know.

Public opinion has been at times desperately against draining, many laughed at me, my friends counselled me, and were afraid I would have to sell my farm to pay for draining, but I thought I saw my way all right; many that then laughed at me have since drained their own farms. If farmers take an interest in the work they will soon learn to drain property. One thing is certain they can never make the land too dry.

BY THE SECRETARY.

Stagnant water is injurious to vegetation, and no useful plants will grow in a soil that is saturated with it. The object of drainage is to remove this superfluous water, and prepare the soil for the growth of valuable plants. It is found by experience that not only swampy land so called, suffers from an excess of water, but that much of the land that is cultivated for crops is seriously injured by its presence. It is the object of drainage to remove this excess of water, and for tillage it is found impossible by drainage to render ordinary soil too dry for successful culture, and however paradoxical it may seem, it is found that drained land suffers less from drought than undrained. The testimony which is here presented from so many practical men on the utility of drainage, leaves no

room for doubt that this is the way to bring under successful and profitable culture those large tracts which not only as swamps, but as arable fields, have been found too wet to produce remunerating crops. All land that bears rushes and the three-cornered grasses, so called, but which are not grasses at all, but sedges, Parnassus grass, or flowering plantain, and other aquatic plants, needs draining, though water may not appear on the surface, but exist in just sufficient quantity to saturate the soil, and not enough to rise above or flow over it. Even for grass, such lands need draining, and very many fields which answer very well for grass, if needed for tillage, from any cause, want draining, as the first step towards making such tillage profitable. If a field is too wet for ploughing or culture when the best tillage land in the vicinity is fit for the plough, it will be benefited by draining, and the only question to be decided is, whether its increased annual productiveness will pay a good interest on the investment. This, like every other question of cost and value, can only be answered for each individual case.

The travel to distant fields for carting manure, bringing crops, and all purposes, is no inconsiderable item, which is saved by bringing the good land just where you want it; besides no miser ever found a safer place to bury his treasures than well covered tile and stone drains have proved to those who have had sufficient enterprise and skill to invest their funds in that way.

The horticulturist who would try his skill in the culture of foreign grapes under glass, can do nothing without drainage. In any soil except an open gravel, the bed for the roots must be drained by a layer of stone under the whole, with a drain surrounding it, several inches lower than the bottom of the bed. Without this preparation, failure is certain. If we would succeed in field culture, in the highest degree, we must imitate the successful practices of the garden. Perfect drainage, either natural or artificial, is essential to the highest productiveness.

The effects of draining in changing the character of the vegetation, and in increasing the productiveness of the soil,

are evident to any one, but why these results are produced, may need some explanation.

Stagnant water makes a soil cold and sour; and hinders the entrance of air to aid in decomposing both the organic and mineral ingredients of the soil, that they may become food for plants.

Stagnant water makes the soil cold, as it usually rises from below, and by its evaporation keeps the surface cool. It makes the soil sour, for where it exists, certain acids are generated that are injurious to vegetable growth. Air can not, of course, enter the soil that is already full of water, and vegetable matter remains without much change for a great length of time. This is seen in swamps, where wood and roots are found that have lain buried for many years.

Now if we draw the water off from below, the air, of course, follows; the earth is warmed; the acids are washed out or decomposed; the soil becomes more loose and open, by the flow of air and water, and the inert, organic matter which it contains becomes fit for food for plants. Seasons of extreme drought are in the end undoubtedly beneficial to vegetation, though at the time they appear injurious. Now a soil that needs draining, rarely if ever feels the benefit of a drought. If it ever dries it bakes hard, and a drought is even worse for such land than for that which is drier.

When water falls upon land naturally dry or well drained, it soaks in, carrying with it ammonia and other gases, to be absorbed directly by the growing plants, or stored up in the soil for their future wants. But when it falls on a saturated soil, it can not enter, but either rests upon the surface, or flows off. Hence we find that by draining, the soil is rendered warmer, sweeter, deeper, more open; it takes plant food from the water of rains, and also furnishes it, by the decomposition of matters already in the soil.

We are slow to learn, or at least to practice on our knowledge that the second six inches of soil may be as valuable as the first, with this advantage, that once ploughing and harvesting answers for the double depth. Draining enables us to deepen our soil, and give our crops a wider range for food.

The roots will never penetrate into a subsoil, saturated with water, and however rich it may be in the elements of fertility, they are useless to us. Open the way for the water and the air to go down, and the roots will follow, to draw up from below that which was before inaccessible.

Having decided that draining will benefit our field, and we are prepared to meet the expense, how is it to be done? In a field of uniform character and inclination, the drains should be at uniform distances, and always run straight down the slopes. But as most of our fields in New England are not of this character, but irregular in surface, we must adapt our drains to these irregularities. Avoid, if possible, the natural hollows, where the surface water runs, for this water will break into and choke the drains. Seek to cut off the drip and springs from higher land, by lateral branches or oblique drains. In an extreme case of a tenacious soil, we may need drains four feet deep, and only thirty feet apart, but if we can strike a porous strata, the drains will often draw water for three times that distance. If stone are abundant, and it is an object to get rid of them, use stone, but otherwise tiles will be the cheapest, when made in the vicinity, or brought by water. In using stone, the great difficulty arises from having them too large, and neglecting to fill up all the crevices. The earth must be well packed in, and rounded up on top, so as to remain a little higher than the adjoining ground. It is a good plan to ride a horse through the ditch while it is being filled, to tramp the earth firmly. After the ditch is well settled, and turfed over, there is little danger from surface water, but at first it often breaks in, and sometimes ruins the whole work. It is desirable that a ditch have an even, gentle grade the whole length, yet no precise rules can be given for the degree of inclination, for in some lands it will bear much more than in others. Hollows, levels, or slackwater places, of course, must be avoided.

The kind of stone, and the character of the soil, will, of course, determine how they shall be laid. Generally we do not advise an open sluice, with side stones on each side; unless for a main drain, with much water, it requires too wide a

ditch, and the stones will slip together, when the earth washes out and obstruct the channel. Rather use one side stone, with the top stone resting one end on this, and the other end on the bottom of the opposite side of the ditch. Pack in the small stones very closely, and leave room for a good depth of earth on top of the stones.

The outlet must be free, and kept unobstructed. Grass and weeds are apt to grow up and stop the fine particles of earth that wash out, and obstruct the channel. Moles, mice, and woodchucks are the greatest enemies to stone drains. A little timely attention in stopping their holes will save much after trouble.

In the case of John Johnston, he states that on the average, the increase of two crops of wheat after draining paid the whole expense. While only in rare cases can this be attained, yet there are few farms where a judicious expenditure in drainage will not pay a larger interest than any investment in stocks or government bonds.

Look at these cases and see how common they are. A portion of a field used for tillage is so wet that it does not produce half a crop. The annual labor of ploughing and cultivating is the same as for the rest of the field, but the produce fails. If ploughing is deferred for this to become sufficiently dry, it is too late for a good crop, and you lose on the whole field. In such places, commonly, springs will be found near the surface, and by tapping these the whole will be made dry. Last summer I saw a fine stream running from one corner of a neighbor's cornfield, in a ditch about six rods in length, and four feet deep. The ditch was opened in the spring, and the corn close beside it was as good as any in the field. He told me that before the drain was dug, this corner was always wet and unproductive. He had found a true solution of the difficulty, and applied the right remedy.

How often do we find a springy place in the meadow, unfit for the mowing machine, or horse-rake, or even too soft for the hay-cart, that hinders each year more than the cost of putting in a drain to tap the spring?

These are the first cases to attack, but right after them and

closely following, are whole fields of little value from wetness, that from their location are in the way on the farm. Although they yield a small annual income, yet the farm would be better if they were out of the way. The only way to deal with such fields is to make them what they ought to be, and the only way for this is by thorough drainage. The argument, that you can buy land that does not need draining, cheaper than you can drain this, though apparently very conclusive, does not prove that it will not be profitable for you, under the circumstances, to drain this. The experience of so many Connecticut farmers, reported in these pages, forms an argument that it is hard to disprove or resist, and without farther comment it is commended to the sober consideration of those who own and till the soil of our State. While extended and valuable treatises already exist on drainage, it was the opinion of the State Board of Agriculture that a little familiar talk on the subject among the farmers themselves, might encourage inquiry, and be of good service in the cause of agricultural progress. As such, rather than as a complete treatise, it is submitted to you, fellow farmers, for your consideration.

IRRIGATION.

D. W. COIT, NORWICH.

Irrigation is another important adjunct to Agriculture, but it is no where, hereabouts, as I know of, engaged in thoroughly and systematically ; so far as wash from the roads can be turned on to lots in their vicinity, it is generally done, but very little pains is taken to make the most of it by spreading it through little rills, over the whole surface ; on the contrary, it is too often left to itself, to run in one unbroken stream to the brook or creek that is to convey it to the river, and so on to the sea. Many thousand loads of wash, of no inconsiderable value, is thus lost for want of a little attention in giving it a proper direction over the fields, where there is every facility for doing it, and yet you hear people constantly complaining

of the cost and difficulty of getting manure, or other fertilizing material to maintain the fertility of these same grass lands.

A meadow which I own in the center of the country part of the town, is a type of very many others; it contains, in a square, six acres; the half of this, laying along the road, and receiving the benefit of the wash, produces at least four times the value in grass that the other half does, lying more remote, and which the wash does not reach. This land has been in the family eighty or more years; always treated as mowing; never ploughed within that time, and never top-dressed, except partially, with ditch mud; the whole mowed twice, and the annual product in hay rather under two tons to the acre, with excellent pasture for a couple of months.

I believe we have not arrived at the point yet of irrigating from the sewerage of our cities, which is pursued to so much advantage in parts of Great Britain. The most successful instance of irrigation, with simple river water, may be seen in Peru, in the vicinity of Lima, where I was a resident for a considerable time. The climate is a most luxuriant one, uniformly mild and equable, never cold, and never oppressively hot; but the strangest thing about it is, that it never rains, and the only source of vegetation is through irrigation. It should be remarked that this climate is confined to the sea coast, and to the interval between the foot of the Cordilleras, consisting of valleys between the spurs of the mountains, and extensive plains, extending to the ocean. This work of irrigation was already established by the aborigines, before the conquest, they having arrived, under the reign of the Incas, to a very considerable degree of civilization. They had covered all these gently inclined plains and valleys with a net-work of canals and rills, water being supplied from the rivers, descending from the melting snows of the Andes. The Spaniards, since their possession, have succeeded to these Indian works, doubtless making additions to them, and keeping them in order; every field, meadow, and garden, has thus its little stream running across the upper side of its inclined plain, and when water is required it is always at hand, it only being necessary to make a little opening in the run, when the want

is instantly supplied, and this is never failing. It is easy to imagine what the vegetation must be in this tropical climate, exempt from gales or storms, and for manure, guano in abundance; the Chincha Islands being just at hand, at a short remove from the coast.

ALBERT MOORE, SALISBURY.

Irrigation enriches the soil, and renders it light and friable, like garden or new land soil. By discontinuing it, I have raised an enormous crop of corn, without manure, and have had similar results with rye, oats, and potatoes. From a poor piece of land, yielding less than a ton of poor hay, white daisies, and Johnswort to the acre, I now get three tons first quality of hay, without ploughing or seeding. The daisies and Johnswort have entirely disappeared, and Canada thistles and other injurious plants do not attain a foot-hold on irrigated land. This I attribute to the very thick growth of grass, as I have counted from eight to twelve grass plants on a square inch of irrigated turf, and not over one on the same area of unirrigated, and but a few feet apart. Meadow moles and mice, grubs, and grasshoppers, and all other insects and vermin, cease their depredations on irrigated land.

All kinds of farm stock, prefer the hay, and eat it with avidity, and do well on it. I have even known sheep to fatten on it alone in winter, and become fit for the butcher in spring.

The meadow requires no other manure, and when the hay is consumed on the farm, it contributes largely towards furnishing manure for other parts of the farm. Cattle eat the stems of the hay much cleaner than of other hay, as by growing so thick it is so much finer, and less distasteful than hay from heavily manured land. I have frequently seen grass standing over five feet high, on one side of an irrigating ditch, by measurement, while on the opposite side, where the water could not reach, the grass was scarcely a foot high.

The irrigated portion of a large pasture is constantly fed down much closer and shorter than the adjacent portions, beyond the reach of the water. The grass on irrigated land, not only starts earlier in the spring, but holds out later in the

autumn, thus shortening the foddering season at both ends. The water tends effectually to keep off both early and late frosts. Even if a field of corn is flooded a few inches deep in a frosty night, it will escape the effects of the frost, and the same is true of tobacco; and other like crops.

A small rill of water which flows but a month or two in spring, if spread over the adjacent surface of grass, will, if continued yearly, soon show its good effects the entire season, and the effects of irrigation are often of the most reliable and durable nature.

I have never noticed any different effect from hard, soft, cold or warm, brook or spring waters. My theory is, that all water contains fertility in solution, and by irrigation it is placed or even put into the mouths of the rootlets of plants, and absorbed at once; that it is not so much the water itself, but what it contains, which causes the result.

I can point you to large apple trees now standing and bearing well on a meadow irrigated profusely for the last fifty years. In another meadow young apple trees are doing well where the irrigation is applied both winter and summer.

The grape, currant, raspberry, Lawton blackberry, asparagus, tomatoes, spinage, horseradish, and other fruits, and garden vegetables, which bring a high price in market, thrive well under irrigation, but it must be land adapted to irrigation, and not naturally wet.

During the growing part of the year and when practicable, the water should be let on to the crop only from the setting to the rising of the sun daily, and kept off from the rising to the setting of the same. Most of the great crops of grass by irrigation in this country are raised by letting the water on both night and day, but the night method is much preferable when it does not require too much time and expense.

A few days before the grass is cut, the water is withheld entirely, just long enough to let the ground become sufficiently hard to allow the mowing machine to work. When the crop is removed the irrigation may be resumed and continued through the year, (both night and day in the winter,) except when in pasturage.

The only "ill effect" which I have noticed is, that the grass, if not cut when mature, is a little more liable to lodge or fall down, in which case the water should be withheld at once, and the grass cut without delay, and the water let on for a second crop. Never have known or heard of any injury to the health of animals.

Nearly all soils not naturally wet are adapted to irrigation. For all summer irrigation the surface should have sufficient declination to cause the water to flow, and not to stand or stagnate; in winter it may stand without injury, but should be kept off from spring till winter, if the surface is flat. By winter flooding the ground is kept from freezing; it settles earlier, and the grass starts earlier in the spring. The sediment from the water in some localities, so enriches the land that any summer crop (the land otherwise being adapted,) may be raised every year without other manure, and this may be done when summer irrigation is impracticable, and is even beneficial to quite wet soils. Many wet soils when well underdrained, are much benefited by summer and winter irrigation.

WILLIAM OSGOOD, POMFRET.

In regard to irrigation I have done nothing on my own land, but have known something of its effects on land where I have lived. On one of those farms we had some ten acres of watered mowing. The first thing we did was to give it a good dressing of manure, but when the owner found what we had done he told us that our labor was useless, for it had not been manured before for thirty years, and they always cut two good crops yearly. He claimed that there was virtue enough in the water, without any other manure. The water was common brook water, and plenty of it.

DAVID C. WHITTLESEY, NEW PRESTON.

In regard to irrigation I have had but little experience. So far as that and observation goes, there is but little land that is benefited by pure spring or river water alone. A sandy soil and light dry loam, with gravel subsoil, would undoubt-

edly be improved by it. Where water washes roads, hill-sides, or in any way is mixed with foreign fertilizing matters, it would be very beneficial to most soils.

J. S. ALLEN, EAST WINDSOR.

Irrigation has not yet been fairly established as an important branch of agriculture in New England. The reason for this, I suppose, is found in the fact that our agriculturists have not seen the necessity of it. For our land "is a land of hills and valleys, and drinketh water of the rain of heaven."

Of late years, however, what are called wet meadows, are a common feature in some of our best cultivated counties.

With some exceptions, the general practice is, not to leave the water standing upon the land, but taking it from a running stream, which should flow on to the meadow from the bottom of the stream, where it is most charged with sediment, it is conveyed around the outer margin, or along the higher portions of the meadow in a main channel, and from this numerous side branches lead off in such directions as shall most conveniently and thoroughly irrigate the land. The water is allowed to flow through this system of channels as often as may be desirable, care being taken that it shall not lie at rest at any time, the effect of which is found to be a tendency to cause the growth of a coarse grass.

The laying out of the work, and management of the operation, so as to distribute the water uniformly, in the proper quantities, and at the right time, require good judgment, close attention, and much experience.

In summer, one day in a week is sufficient to flow the land, before the grass is cut; after mowing the grass, the land may be irrigated for a week to advantage. The warmer the air the less time will the grass bear to be covered. Thus by judicious management three or four crops of grass are obtained in each season, or only one abundant crop is made into hay, and the sheep and cattle feed off the others. By this means alone, common pastures have been made into the best of mowing. But the perfection of irrigation is when it is combined with thorough under-draining. There is then a healthy system of

circulation going on. The water flowing in, brings with it in solution or suspension, various mineral and organic substances, suitable for the food of plants. By the drains the excess of moisture is soon removed; stagnation, so injurious to vegetation, is prevented; and the elements that feed the plants below the surface, are kept in a similar condition of healthy renewal with those of the air circulating through the branches, and adding to the vegetable growth by assimilation going on through the leaves.

The benefits of irrigation vary, of course, with the quality of the ingredients brought in by the water, according as these are more or less suited to the requirements of the soil and the crop. The hard water charged with carbonate of lime, which it has gathered in flowing through a limestone region, brings a valuable fertilizing ingredient to silicious soils, deficient in lime, and the clayey sediment washed out of alluvial bottoms, is spread with the most beneficial effect over loose sandy soils. Where lime is in excess, water charged with the acid salts of iron may be introduced to advantage, which reacting upon the carbonate of lime, may produce in the soil the fertilizing gypsum. Organic bodies held in solution give to the waters the qualities of liquid manures, and the nature of these should be understood, that other applications may be made with due reference to their composition.

Pure water alone is highly serviceable, acting like the rain, to carry along with it to the rootlets, the elements of vegetable growth, which it takes up in the soil, besides entering itself into the circulation of the plants.

REMARKS BY THE SECRETARY.

Irrigation is the watering of land by causing streams of water to flow on and spread over it. Flooding land is the entire covering it with water, either naturally by the rise of rivers and streams, or artificially by damming up streams, and causing the water to set back and overflow the adjoining fields. Water being the great agent in both cases, the results are to some extent similar, but the conditions being so different, of

course they must be discussed separately, and we must expect varied effects.

For the purpose of successful irrigation the land must have some inclination, that the water may flow over the surface, and not stagnate upon it. Only in case of a very open, hungry gravel, which allows the water readily to soak through it, can a level surface be profitably irrigated. Stagnant water makes land cold and sour; it obstructs the entrance of air into the soil; prevents the decay of organic matter, and of course does not allow plants to obtain a supply of food. But running water brings in solution, both organic and inorganic food for plants; it comes charged with atmospheric air, and other gases, which it gives up directly to the growing plants, or which serve to aid in the decay of matters in the soil; it furnishes an abundance of water, through which alone, as a solvent, the solid parts of all plants enter into their organization, and which of itself makes up by far the largest part of all fresh vegetable matter. This is the theory of irrigation, and we are to inquire if practically these results are attained. The accounts from California and Peru, of the success of irrigation, as practiced there, and the reports of our own correspondents here at home, justify us in the conclusion that theory is fully sustained by practice, whenever it is properly applied. When we use irrigation at one time of the year we secure more especially one kind of benefit, and at another a different one. Thus irrigation during winter, when there is no growth, must depend entirely upon its enriching the soil, and its effect upon its mechanical condition, while during the growing season, furnishing water to the plant must be an important office.

It is advised to allow the water to flow upon the land during the winter. We think that with a loamy soil and tenacious subsoil, this will often kill the grass, and do more harm than good. A more open soil will act as a filter, and retain all the nutriment for plants against the season of their growth. But in spring when the dissolving snows swell our streams, and the earth is even to some extent still frozen, the water contains not only more ammonia and other gases in solution, but en-

riching materials from the fields and barnyards, which the springing plants are ready to absorb ; then we have the sure benefits of irrigation without any drawbacks. Later in the season, with warmer weather, again care must be used or injurious results will follow protracted irrigation.

The fact that irrigated land needs no other fertilizing, is well attested in the foregoing reports. Good crops for a succession of years, have been gathered without any manure being applied. My own experience shows that great benefits may result from irrigation.

During the parching drought of some of our summers, a supply of water is of the first importance for vegetation. The soil in the valleys of most of our rivers and streams is just of that open nature to be benefited by irrigation. It is not too much to expect that the produce of such land will be at least increased fourfold by systematic irrigation. A moderate outlay will be sufficient to give a trial. Circumstanced as we are, sometimes with a dripping sky like Britain, and again parched like the vallies of California, while the practices of either country are not necessities here, yet we can derive much useful instruction from them. We should guard against excessive wet, by draining, as in England ; and against the effects of drought, as in California, by irrigation. Thus should we meet those excessive vicissitudes in regard to moisture to which we are exposed in this climate.

Artificial flooding is only practiced in winter or early spring. The amount of enriching material deposited, will depend very much upon the character of the stream. If it has gathered its waters from rich ploughed lands, the amount of sediment will often be considerable, and sufficient to maintain the fertility of the soil, though the crop is annually removed. It brings the frost out and gives the grass an early start.

On the other hand, if continued too long, the more valuable grasses are killed out, and the fine, wiry swamp grasses and bogs take its place. Whenever flooding can be secured without an expense too largely in excess of the expected gain, it should be attempted. We have always noticed the improved appearance of those farms which had some fields of this

character, that needed no application of manure, but were always affording an extra supply for other parts less favorably located.

As a branch of irrigation, warping may often be practiced to advantage. This consists in covering land with earth to a greater or less depth, by the action of water. Earth that of itself is comparatively barren, when spread over soil of a different quality, often produces the happiest results. Many a rocky, wet place, at the base of a hill, can in this way be rendered both smooth and fertile. Streams of water that only gather during hard rains, may sometimes be turned to advantage in this way. I have seen small swamps thus converted into nice alluvial soil, at a very trifling expense. The uneven surface of our farms, and the abundance of water, peculiarly adapt them to these modes of improvement.

FRUIT CULTURE.

CHARLES OSGOOD, POMFRET.

The town of Pomfret is made up of a series of large hills or ridges, with their longer axis extending North and South, and these of smaller ones of the same general conformation. The underlying rock is of the primitive formation, that through the central and larger portion of the town being mica slate, which is wholly decomposed upon the surface, and seldom cropping out, and the soil and subsoil appears to be composed of the debris of this rock mingled with that brought on during the period of the drift formation.

The soil is generally strong and retentive, and in some portions of the town wet and cold, from the large proportion of clay in it. The apple is cultivated successfully, in the sheltered valleys, upon the sides of the hills, sheltered from northerly winds, and with equal or better success upon the summits of some of our highest hills, exposed to the full force of the North and West winds.

My success in transplanting and growing trees has been all

that I could desire; my error, in the selection of varieties. Regarding a young tree as a living, organized plant or being, whose life was to be prolonged and rendered vigorous and fruitful by a proper supply of nourishment suited to its growth, and adapted to its wants, it has been my practice to plant the ground designed for the orchard, with some hoed crop, the year previous to transplanting, and for one or two years subsequent. In preparing places for the trees, not to dig holes just large enough into which to crowd the roots of the trees, but holes from three to five feet in diameter, throwing out the subsoil to the depth of eighteen inches, and filling up with soil from the surface, mixed with well rotted manure. This proper preparation of the ground, I regard as of the first importance. No after cultivation will make up for the want of it. For a dry, warm soil, with a porous subsoil, I prefer to transplant in the fall; then the earth becomes settled around the trees, and where the roots have been mutilated and pruned, the deposition of granulated matter takes place during the winter, and the tree is ready on the opening of spring to start into growth, but for wet soils, or where the subsoil is a retentive one, it is better to transplant in the spring, as early as the ground is in suitable condition to work.

For the orchard I prefer trees of large size; thrifty, stocky trees, not less than seven or eight feet high. Such trees, if not over-crowded in the nursery rows, can be removed without serious injury to the roots. The ends of all bruised or mutilated roots should be cut off with a sharp knife; this will permit them to deposit granulated matter, and throw out clusters of new roots; if it is not done they will absorb moisture and decay.

Having filled the holes with the prepared soil, to the proper height, shaping it so that the roots will have an even and firm bearing, carefully fill the earth around them with the hands in such manner that they shall retain their natural position, and no cavities be left. If at the time of transplanting, the ground should be dry, pour a pail of water around the roots, and when it is settled, fill in the remainder of the soil, care always being taken that the trees are not planted deeper than

they stood in the nursery. If the roots of the trees are well balanced, spreading out evenly in all directions, there will be no occasion for staking, but such is not always the case. The graft I have found to exert a controlling influence upon the general formation of the roots of the stock upon which it is grafted. In some varieties the roots will be found branching out in every direction from the body of the tree; in other varieties a less number of roots, and less evenly distributed; and in one variety, the Swaar, the whole forces of the tree seem to be directed to the formation of one or two large roots; the consequence is, that in the nursery rows the Swaar is found leaning in every direction, and unless special care is taken when transferred to the orchard, it will not be likely to retain an erect position.

The soil on which trees are grown also exerts an influence upon the roots. It is desirable in selecting trees for an orchard to get those which are well rooted, that is, having a large number of small fibrous roots. Such trees will be found in nurseries having a strong, rich, loamy soil, whereas trees grown in a light, sandy soil, will be comparatively destitute of them.

I have practiced both summer and winter pruning, and carefully observed the effect; the result is that I have abandoned summer pruning entirely, and now prune only in the month of February, or early in March, before the sap has started into circulation. The only argument used in favor of of summer pruning is, that the wounds made heal sooner, which is true to a certain extent. On a thrifty tree, a small limb or twig cut off the first of July, would be completely healed by November, but it would have been as effectually healed by that time had it been taken off the first of March previous. Here is a difference of four months in the time of healing. How are we to account for it? In the spring and early summer, the energies of the tree are mainly exerted in the formation and growth of the leaves and blossoms, and it is not until midsummer that the leaves, through the combined action of their various functions of absorption, exhalation, respiration and digestion, fairly commence the work of con-

verting the sap absorbed by the roots from the soil, into the proper juice for the growth of the tree, and the deposition of matter for the formation of the annular ring or yearly growth goes forward more rapidly in the months of August and September than at any other time.

If the object of pruning is to promote the vigor of the tree, it should be done in winter ; then at the coming of spring, the sap from the roots is directed to the remaining branches, and it starts into growth with increased vigor ; but to delay this pruning until midsummer—a time when the vital forces of the tree have become exhausted in the formation of leaves—a time when these leaves are most needed to elaborate those juices which are needed for the perfection of the fruit and growth of the tree, the object aimed at will not only be defeated, but the vigor and growth of the tree impaired in proportion to the extent of such pruning. Pruning, whether to modify the form of the tree, to take out crowded branches, or those which are uselessly filling up the interior of the tree, or for any other purpose, can be performed better in the winter than at any other time ; but all needless pruning should be carefully avoided, for growth depends upon the action of the leaves and branches, and if these are well balanced, and in due proportion, it would be more likely to prove injurious than beneficial.

The insects most injurious to the apple tree are the borer, aphid-scale, green and woolly, the caterpillar, and canker-worm. The borer seldom attacks trees in moist or clayey soils, but in light, warm, or sandy soils, it often does great injury. With the borer, prevention is better than cure. The preventions are to wash the trunks of the trees with a strong solution of potash in water, strong soap suds, or what is better than either for small trees, to rub the trunks of the trees with common hard soap. The aphid, or plant louse, seldom attacks thrifty, healthy trees in the orchard, though it frequently does in crowded nurseries. Here again, prevention is better than cure. Keep the trees in thrifty condition, remembering that a feeble, sickly tree, like a poor, half-starved calf, is very apt to be a lousy one. Against that common pest of the orchard,

the caterpillar, a war of extermination should be waged. Show no quarter, but kill them whenever and wherever they can be found. During the last sixty years the orchards in this town have been repeatedly injured by the canker-worm, but for a number of years past these worms have not been in sufficient numbers to do any material damage.

I am not aware that the leaden trough filled with oil, or any of the new patent contrivances to prevent the ascent of the insect, have been successfully applied.

Of the insects which attack the fruit, there are but two which deserve special notice, viz., the apple worm and curculio.

The apple worm is the one which is found in the early worm eaten apples and pears, a reddish white worm, which causes the fruit to ripen prematurely. But the damage done by the apple worm is comparatively trifling to that by the curculio. The curculio has been regarded as the special enemy of all smooth, stone fruits, such as the plum and cherry, but it is as much the enemy of the apple as of the plum. It is not uncommon to see trees covered with blossoms, which are followed by a full setting of fruit, but when it has grown to the size of walnuts, to find the ground under the trees literally covered with fallen apples. Most people readily account for all this by saying "they were blasted;" so they were, and the curculio did the work. Examine these "blasted" apples, and one or more of the peculiar crescent-shaped incisions made by the curculio, will readily be found. Under the edges of these incisions eggs were deposited; in due time they became grubs, which burrowed their way to the core of the apple, and then it fell to the ground. This insect is less troublesome on moist and clayey, than on warm and sandy soils, and some varieties of apples suffer more from its attacks than others.

Formerly the Roxbury Russet did well on any good soil, but at the present time it would be the height of folly to set an orchard with this variety on a light, porous soil. To such an extent is it injured by the curculio that any one might reasonably expect to realize one hundred dollars from a cer-

tain number of Baldwins where he would five from the same number of Russets. It is useless to wage direct war upon the curculio, but it is well where practicable to let swine run in the orchard, to eat the immature fruit as it falls, and thus destroy the worms before they change into the perfect insect. The best that can be done is to cultivate such varieties only as are known to withstand its attacks, and bear abundant crops.

As farmers having a large quantity of apples to dispose of, generally do it to dealers in the large towns or cities, it is important that they should be put up in such a manner as to bear transportation, and suit the market for which they are designed. To this end they should be hand picked, and transferred directly to the barrels; no piling in heaps, in the orchard or elsewhere; taking special care not to bruise them in the least; and as dealers, when they open the barrels for sale, do it by taking out the head at the bottom, begin the filling by placing a row around the bottom of the barrel, *stems downward*; within this, in like manner, another row, and so on until it is covered; the remainder of the filling can be done promiscuously, occasionally shaking down the apples as it proceeds. The barrel should be filled level with the top; the head pressed to its place, and secured firmly; and the name of the variety marked on the bottom. Apples picked in this manner will bear transportation, and suit any market. If not sent directly to market, they should be kept in a cool place, and protected from the sun and weather, in an open shed, fronting the North, upon the North side of a building, or under the trees where they grew, and if designed for family use, let them remain until there is danger of freezing, when they should be put in the cellar.

Of all the numberless varieties of apples, there are but few comparatively, that are worthy of cultivation for family use, and a much less number for market. As the ten best varieties, I name Red Astrachan, Porter, Gravenstein, Fall Greening, Coggswell's Pearmain, Golden Sweet, Lady's Sweet, English Beauty, and Baldwin.

I have some thirty varieties of Pears, mostly standards; many of them have not come into regular bearing yet. The Bartlett, Seckel, and Beurré Bosc, promise to be the best.

I send you also the statement of apple crop of Mr. Potter, of Woodstock, and Mr. Butler, of Pomfret. I was in hopes to have been able to send you other statements, but have not as yet been able to procure them. The statement of Mr. Potter, I regard as most remarkable. It shows what proper care and cultivation, joined with a judicious selection of varieties will do. The English Beauty is an apple that has been but little disseminated. It originated in South Woodstock; is hardy and thrifty; a great and regular bearer; fruit, good size and handsome; skin, when fully ripened, yellow, splashed and striped with red; flesh, tender and juicy; acid, too much so to suit the taste of many, and has a tough skin which enables it to withstand the attacks of the curculio, and bears handling and transportation. It keeps as well as the Russet or Baldwin, and take it all in all it is beyond a doubt the most profitable apple cultivated in this region.

J. K. POTTER, SOUTH WOODSTOCK.

Have ten acres of orcharding; three hundred trees; one-half have been set ten, the other half fifteen years. Soil reddish loam, moist and retentive, with a clay subsoil; land descends to the east; trees have been thoroughly cultivated; have practiced washing the trees with strong soap suds, to destroy moss and insects; also scraping the trees when the bark becomes rough; prune in February and March. The English Beauty has proved the most profitable apple; two-thirds of my trees are of this variety; had this year, nine hundred and fifty barrels, from the three hundred young trees; from some old trees, fifty barrels, making in all one thousand barrels. Sold one-half of my crop on the trees; picked and marketed the balance of the crop myself. Total amount of receipts from sales made the past year, \$1,995.33; total expense of picking and marketing would not exceed \$75.

S. W. BUTLER, POMFRET.

Have one acre in orchard; exposure, north-east; soil, warm loam; whole number of trees, fifty; principal varieties, Bald-

win, Greening, and Hubbardston Nonsuch. Sold fifty-five barrels the past year; net receipts from the sale of apples from the acre last year, \$200. Average annual yield for the last four years, sixty-seven barrels.

A. B. WORTHINGTON, MIDDLE HADDAM.

My soil is fine sandy loam, lying on and between ledges, and sloping mostly to the west, without any protection from the north. My pear trees are scattered among the rocks, on this steep slope, or on the natural terraces. I have but three or four kinds, as yet, in full bearing. Thus far the Muskingum has proved the most profitable variety with me. I am aware that it is not considered a number one pear, but do think, all things considered, it is a good pear for this locality; the worst feature I have found in it, is its disposition to ripen rapidly, and to decay at the core; this decay I never have found until it is over ripe, and as we can send fruit to New York every night, and to Hartford every morning, we have no trouble to market the very day they are fit for it.

Some of its advantages or merits over other varieties that I have cultivated are, first, coming into bearing early. I started with Bartletts and Muskingums at about the same time, giving the Bartletts the preference, on account of their reputation among fruit growers; but the Muskingum has far outstripped the Bartlett, and this brings me to the second merit, viz., it is a very free grower, producing wood rapidly; again it bears with much more uniformity than any other, except the Seckel; the fruit is more uniform in size and shape than the Bartlett; very uniformly distributed on the tree, and never has required thinning. It sells readily for full the average price of the Bartlett, and last summer mine sold better than my Bartletts. My Seckels have pleased me next to Muskingum, and it is, in my opinion, the very best pear for a careless or lazy man to raise. The Bartletts I like very much, and have as many trees of this as of any other, but I think they require more care and attention than some other kinds, so that my neighbors beat me on Bartletts, and I do not like to be beaten. My Winter Nelis bear well, and are very fine. My Vicar of Winkfields

bear well, but are not good, but think are improving. I have no dwarfs, and think the Vicars should be thinned. My Duchesse d'Angouleme were not good the first three or four years, but last year they were large and delicious. I have tried but few dwarfs, and they are all gone. I like standards better, and can bring them into bearing almost as soon, by keeping them well shortened in. I have Bartletts and Dear-born Seedlings, not higher than my head, in bearing. My best pear trees are those that I have found in the fields and woods, where I could take them up at my leisure, and save the roots, and place them in the ground at once.

Of grapes or small fruits I have not much to say. The Lawton Blackberry I find profitable to raise for market, because they will bear whether they are taken care of or not, and I am not master of my time, so that my fruits get but little care.

My apple trees are mostly on two acres of ground, sloping not as much as where my pear trees are, but with the same exposure. Two-fifths of my trees are Baldwins, and two-fifths are Greenings, and from my experience I do not think there are any kinds much more profitable than these two. My trees have low heads, so low that I have stood on the ground and filled five barrels of good picked Greenings from one tree, in seventy-five minutes. My orchard never has been ploughed since the trees were planted, and I do not know for how long before. My Golden Sweets, I consider very profitable trees, although I have but few trees, but some bear the even, and some the odd year, so that I always have a supply, and some to sell, but if there was no sale for them, they would pay well to give to the cows and pigs. The Roxbury Russet, the Peck's Pleasant, and the Lady's Sweeting, do well with me. I had five trees of Tallman Sweetings, but although they bore very regularly and very fair to look at, I had to acknowledge myself conquered by the maggot, that works so under the skin, and finally surrendered unconditionally, and had the trees grafted over. But one other kind have I ever known so badly affected, and that was an apple called here the Rock Sweet, and that tree I have had grafted with Northern Spy.

Peaches are so uncertain, and Grapes have so generally failed in this locality for the last two years, that it seems the Apple and Pear must be our great dependence, and with a little care and attention we can have a very comfortable supply of them the year round.

F. A. ROCKWELL, RIDGEFIELD.

Of Grapes I cultivate only the Concord, all other varieties which I have tried having failed. The Concord did not fruit well the last year but I have a good growth, and I think it promises well for next year. Of Pears I have about one hundred and fifty trees, both standard and dwarfs, and twenty varieties. The Dearborn Seedling, Bartlett, Belle Lucrative, Lawrence, Louise Bon De Jersey, Duchesse, Beurré d'Anjou, Beurré Diel, Vicar of Winkfield, and Beurré Clairgeau, all do well with me, and I will name them as the ten best varieties, including early and late. My Pears are on a light loamy soil, and no fruit pays better for manuring. I think most of my dwarf trees have thrown out roots from the pear stocks.

Of Apples I have one hundred and fifty trees, as fine as are often seen. In preparing for planting, the holes were dug about six feet in diameter, and two feet deep; the top soil put one side, and bottom the other side. The top soil, with a mixture of well rotted manure, is put in the bottom, and the hole filled high enough for the roots to rest on, and then covered with the same kind of soil, the roots all being laid in their natural positions, and the covering is finished with the bottom soil, which I can enrich by top dressing at my leisure. Best ten varieties, Baldwin, Baker, Rhode Island Greening, Roxbury Russet, Hubbardston Nonsuch, Peck's Pleasant, Golden Sweet, Jersey Sweet, Early Joe, Early Harvest.

D. W. COIT, NORWICH.

I cultivate and have for many years, all the desirable fruits a family requires, both under glass and in the open ground; my remarks will be confined to the latter. All the smaller fruits succeed well with me, as they will every where in our State, I believe, with proper attention.

Strawberries. After a trial with very many of the new kinds, as they have come out from year to year, I have found nothing for my locality better than Hovey's Seedling, fertilized with Boston Pine, or some good staminate sort. I have had it in cultivation twenty years or more, and now, with eight or ten different sorts, it is my principal dependence for next Spring. Of course, for the best results, it must have careful attention through the season, and then be protected by a light covering in the early winter.

Raspberries. There is nothing of the red kind superior, on the whole, for size and productiveness, to the Franconia, and the *true* Red Antwerp, the former the most vigorous grower; for white or yellow, Antwerp, and Brinckle's Orange; but none of these are hardy; they require a light covering of *soil* for winter protection: a new sort, which should be equal in all respects to either of these, and in addition, should be entirely hardy, would have great value.

Currants. Nothing for my use superior to the true Red Dutch and White Dutch, with deep soil and high cultivation; the Cherry, (red,) and Grape, (white,) are larger than the foregoing, but not otherwise equal to them; this as I think.

Gooseberries. All the large *foreign* sorts, mildew badly, after a year or two, with any treatment I have been able to give them; and I have therefore resorted to our American Seedlings, (which have not this serious defect,) although they are much smaller, and inferior in flavor.

Blackberries, are in my estimation so fine a fruit, and it is so desirable to have them always at hand, in one's own garden, that I would not be without them, notwithstanding some prefer the field fruit, brought to their doors, bruised and badly picked though they may be.

Of several kinds I cultivate, the New Rochelle has given the most satisfaction, though by no means perfect; its large size and productiveness recommends it, but it is too acid unless left a day or two after it is colored to ripen, and then it drops too readily from the vine; but a more serious objection is, it is not thoroughly hardy; half the wood is frequently killed, and in severe winters more than that; this is the case on my

grounds, and others make the same complaint; the new kind, "Kittattiny," is said to be free from these defects. I have not tried it.

Peaches and Plums, have so many difficulties to contend with that they are, for out door culture, mostly abandoned. I have grown them for a number of years under glass, successfully, as I have also by keeping supernumerary trees under cover of an ordinary shed, through the winter, the tubs and pots buried in leaves, and then when all danger from frosts and severe early storms was past, bringing them into the open ground. This treatment protects, in great measure, from that fatal disease, the yellows, and the trees remain healthy and fruitful.

Grapes, have done but indifferently in this vicinity, for the past two years; new difficulties are increasing from year to year; a little skipping fly-like insect has recently appeared in this vicinity, known as "thrips;" it attacks the foliage, and if left to itself, will in a few weeks multiply to such an extent as to destroy the leaves, and consequently the fruit, and the vines themselves are sometimes killed to the ground by them. My gardener tells me that frequent syringing with simple water, when they first show themselves, will drive them away; I can not vouch for this, however; should rather rely on syringing with whale oil soap, or tobacco water. My experience with the newer grapes is not sufficient to enable me to express an opinion in regard to them. Of the old kinds, the Concord, and Hartford Prolific, from the certainty of their ripening well, are commendable, and the Isabella, in any situation where it will ripen; Diana and Rebecca, are both superior in quality, but with more uncertainty in ripening. Delaware has suffered in its reputation from the results of the last two years, but yet it is so early to ripen, and so superior in flavor, that it must not be lost sight of. There is one other pest which grape culture is subject to, and it is no small matter; birds are attacking the partially ripened fruit voraciously. The robin, taking advantage of the indulgence granted it in the surrender of nearly the whole cherry crop to its inordinate demands, would now have the grapes also; at the rate we go

on in this direction, it will soon be a matter of question whether we can better do without fruit or robins.

Apples are becoming a very uncertain crop, judging from the last two or three years; one chief difficulty is the increase from year to year of noxious insects; the borer and canker-worm are not so prevalent but that with due precaution we can get along with them, and so with the tent caterpillar; but as for the apple moth, (codling moth,) the most destructive of all, there would appear to be no effectual remedy; it is only when we get a full crop that we can hope for a good proportion of sound and perfect fruit. The curculio attacks the apple too, more than formerly, defacing the outer surface, but does not so generally penetrate to the core as the apple moth. For kinds, I have lost many I formerly had in cultivation, and for the main crop for winter, fall back upon the old-fashioned, well and long-tried kinds; Russets, Roxbury and Golden, Greenings, Cogswell Pearmain, New England Seek-no-further, Belle Fleur. Baldwin, which has stood at the head of the list, in Massachusetts, seems to have fallen suddenly into disrepute, from failure for two or three years, which is my experience here, in a small but fine young orchard I have. Hubbardston Nonsuch is to be highly commended, as is Red Astrachan for a summer, and Gravenstein for an autumn fruit. Sweet apples should not be lost sight of, as a valuable auxiliary to this crop.

Pears have received a good deal of personal attention on my part, for some fifteen or twenty years. I have some eight hundred or nine hundred in cultivation, divided nearly equally between standards and dwarfs; half or more of these some twelve or thirteen years old; they are, with few exceptions, healthy, thrifty trees; all or nearly all in bearing; the pruning, training, and manuring have had uniform attention yearly, which has contributed greatly to their perfection of form and thriftiness. It may be remarked of the dwarfs, that a large proportion of them have become converted into standards, in consequence of my having, in setting out, taken Col. Wilder's recommendation for my guide, instead of Mr. Barry's, the instructions of the former being to set the junction, (pear with

quince,) three inches under the surface, while those of the latter, are to set the junction but an inch under, which prevents the pear from taking root, and retains it permanently a dwarf. There is much to be said on this subject, but I am obliged to be concise. With my experience, my recommendation for an assortment of ten kinds, calculated to give the greatest amount of satisfaction, and at the same time profit for a family, to extend through the entire season, say for fifty trees, would be as follows :

Assortment for Fifty Pear trees, ten varieties.

Three Doyenné d'Ete, best, very early.

Three Rostiezer, a little later, flavor of Seckle.

Two Muskingum, best, earlier than Bartlett, preferred by many in flavor.

Six Bartlett, best, short lived, three weeks.

Twenty Beurré d'Anjou, (half may be dwarfs,) the most valuable of all our Pears; as large as Bartlett, or rather larger. I have had it in constant eating this season, since middle of October, to the present date, 5th January.

Five Doyenné du Comice, a compeer of the foregoing; lasts nearly as long, and is a sweeter and richer pear; not been as long tested; not quite as vigorous a grower. I have had it in bearing five years.

Five Lawrence, best, early winter, delicate, sweet, not so melting as the foregoing.

Six Vicar of Winkfield, later keeping than the preceding; if highly cultivated and much thinned out, a good eating pear; excellent for cooking till March; to me valuable.

I would add, (an after thought,) to the assortment of ten, "Dana's Hovey;" small, but exquisite in flavor; early winter. I believe it unexceptionable, having fruited it two years.

The following, the most of them of first rate quality, *in the books*, I reject from the above assortment as not wholly reliable, and some of them, I fear, worthless :

Beurré Diel, cracks badly.

Sheldon, with a high reputation; has cracked on all my trees, very badly, for two years.

Durandean (de Tongres,) with a high reputation; has cracked on all my trees, very badly, for two years.

Flemish Beauty, very uncertain; spots, and sometimes cracks.

Seckel, is nearly as objectionable. I have eight or ten thrifty, large trees, in different localities, no very good fruit.

Ott, cracks, worthless.

Winter Nelis, is an excellent pear, (winter,) but does not answer in all places.

Bonne de Tees, wood cankers; does pretty well with me.

Glout Morceau, not reliable.

N. HART, WEST CORNWALL.

Probably no fruit in this latitude so fully meets the wants of man as the apple, and any amount of thought and labor that shall improve its quality, and disseminate the best varieties for particular localities, will not be lost; or that shall insure success in propagating healthy, vigorous trees, and best protect them from the ravages of insects and disease.

The worst enemy of the young tree, in this vicinity, is the borer. Its method of attack is elsewhere so well described that it needs no detail here. What most interests cultivators is how to circumvent the pest, or render its labors abortive. In my practice I have used all the means recommended, with little benefit, both to prevent their getting to work, and to destroy the grub when committing its evil work, ending in the loss of quite too large a part of the trees, and retarding the growth of others and producing an inferior fruit when the trees came into bearing.

By far the most effectual way in all my experience is to induce a healthy, vigorous growth, that will as soon as possible get the tree beyond the power of the grub to injure it. So that if I was going now to set out an orchard of young trees, I would work the whole ground deep, and get it in the highest state of cultivation. It can hardly be too rich, with well composted manure, well worked into the soil. Set none but the most healthy trees; mulch around the trees lightly every

year, or more heavily once in two years; and the borer may do its worst without permanent injury to the trees, and besides, the quality of the fruit will be improved. The more perfect the growth and maturity of a fruit, the higher its flavor and, in the case of the apple, the less prone to decay.

The quality of the fruit varies so much in different soils and exposures, that it is difficult to decide what varieties are best to plant. For instance, the Baldwin, so popular in some places, with me is a hard, coarse-grained, sour apple. It may improve as my trees increase in size and age, but now I count them my poorest variety among about forty.

Most places have varieties with local names, that are better adapted to culture there than those better known in the nurseries. Such are the Hurlburt and Excel, and some of the fairest and best apples for cooking that I have ever seen were unknown off from the farms where they originated.

The best varieties for marketing, and the number of each in a given number of trees, depends much upon the market. If for the large cities, it should be confined to a small number of the standard varieties; but if for a local market, a larger number of varieties may be cultivated, extending to all seasons of the year. In setting one hundred trees of ten varieties to supply the local market, I should plant most largely of the Excel, an apple which originated in Sharon; with me it is the most vigorous grower, the most uniform bearer, sells the most readily and for the highest price, and is the best dessert or cooking apple with which I am acquainted.

Excel, 30 trees; R. I. Greening, 20; Peck's Pleasant, 10; Pippins, Mammoth, Fall and Newtown, 10; White Belle Fleur, 5; Baldwin, 5; Graverstien, 5; Golden Sweet, 5; Vandevere, 5; leaving for early varieties, 5.

With pears, as far as my limited experience extends, I have been successful, so that I am inclined to increase my stock.

With the grape my success is so satisfactory that I am disposed to increase its cultivation. The results so far indicate a very congenial soil and favorable exposure. The soil is a rich, free loam on a retentive subsoil, with a south-west inclination sufficient to carry off all surplus water, protected on

the north and east both naturally and artificially. Here all the approved varieties for this latitude ripen in perfection. I have the Muscadine, Hartford Prolific, Rebecca, Delaware, Adirondack, Diana, Concord and Isabella, with several varieties not yet in bearing. With this fruit, as with all others, the best and most thrifty plants pay best.

I trim in the fall and lay the vines on the ground and cover with broken cornstalks or coarse materials of any kind and a few shovelfulls of dirt. Uncover as soon as danger from frost is past; let them lay upon the ground until the buds are well started, and then tie up to the frames. I prefer not to train them above four feet from the ground, always under six feet. Within this height I have never had any mildew, while above it they have not been entirely exempt, at least the Diana and the Muscadine.

Were I to commence again, I should exclude the Muscadine, Rebecca and Diana. The first, because of its excessive growth and little fruit in proportion; and the other two, because they require so much nursing, and are uncertain bearers, while the others do admirably and produce abundantly.

H. S. COLLINS, COLLINSVILLE.

Select list of *Apples* in order of ripening: Early Harvest, Golden Sweet, Porter, Gravenstein, Fall Pippin, Wine, Mc Lellan; Winter Golden Sweet, Greening, Peck's Pleasant, Baldwin, Roxbury Russett.

Pears.—Rostiezer, Hebron, Bartlett, Paradise d'Automne, Seckel, Flemish Beauty, Beurré Bosc, Sheldon, Beurré d'Anjou, Winter Nelis, Lawrence, Beurré d'Aremberg.

Z. L. HUNGERFORD, MOODUS.

I have set trees of my own nursery raising. I have noticed in my own case and that of others, in planting trees, that we have had the best success with those from the vicinity, or, at least, in having them from some part of our own State, particularly from the nurseries west of Hartford.

Among insect enemies, the borer has proved most troublesome. At one time I had an orchard of about thirty trees

attacked by them. I discovered their ravages during the month of October. They had attacked most of the trees, some having five or six in them. I went to work with a narrow chisel, a mallet and a flexible wire and succeeded in killing them all and saving most of the trees.

WM. H. WHITE, SOUTH WINDSOR.

Fruit culture for family consumption has, for a few years past, received considerable attention. Small orchards, not exceeding 100 trees, have been started and are just beginning to bear, some few of which are a source of some profit to their owners, above what is needed for home or family consumption. Fruits of all kinds have proved with us, as in all other places, variable; some years good crops, others small. Orchards are planted with all the different exposures, and in soils of sandy, clayey and gravel loams. Little preparation of the soil more than for a good crop of corn is made. In planting trees, I open a hole three or four feet across, eighteen to twenty inches deep, place in the bottom turf knocked in fine pieces with fine good soil; on this plant the tree, filling in fine soil around the roots, and pressing with the hands till the roots are all covered; when the hole is filled, tread firmly; set the tree as near as it stood in the nursery as possible, first pruning any bruised roots, and cutting in the head about one half the last year's growth. Very little after pruning, except rubbing off small shoots that are likely to interfere with other shoots or limbs.

Grapes I set in rich garden soil, and prune less than is directed in the books; have only such as needed for family use—some half dozen varieties. Give no winter protection farther than taking down from trellis and laying on the ground. Some give other protection, but I get as good crops as they. I have tried only the most hardy varieties.

Strawberries are only grown in quantities for family supply, generally; the beds are renewed about once in three years. Varieties grown: Wilson, Triomphe DeGand, Hovey, McAvoy, Early Scarlet, Boston Pine. These give the best satisfaction of the many tried, I believe.

The most troublesome insect is the Rose-bug on the grape. The only remedy tried is hand-picking and sprinkling the vines with Plaster of Paris.

Cherries, peaches and plums, generally, are things of the past. The black lice have infested our cherries for three or four years past, the last season least, and we hope another year will see still less. Plums are infested with black knot, peaches with the yellows.

Pears—We have the blight to fight, which discourages many who would give them more attention otherwise. Most of our fruit lovers plant a few trees, some one or two and others one or two dozen. I have planted within the last three or four years the following varieties, which have not yet come into bearing: Bartlett, Sheldon, Burré Bosc, Seckel, Lawrence, as Standards, and Duchesse d'Angouleme, Dwarf.

In apples, I have Early Bough, Golden Sweet, Red Astrachan, Porter, Baldwin, R. I. Greening, Peck's Pleasant, Hubbardston Nonsuch, Pomme Gris, Roxbury Russett. Others have still other varieties, but I am satisfied with these so far as they have come into bearing.

H. S. CHAPMAN, SAYBROOK.

But little fruit is raised here for market. Apples and peaches formerly did well here. Pears are being more planted of late and are doing well. Grapes of all kinds would yield abundantly if the rose-bugs could be kept from them, but no remedy as yet has been found. One season, by placing red cedar branches around my vines, I saved some, but the next year it failed. The only way to save a crop is to pass among the vines with a dish of water and jar them into it and destroy them. This will need to be done from three to five times a day, and even then they will get a large portion. Vines trained upon buildings sometimes escape. I have dug up some of my vines, thinking it of no use to fight bugs any longer. These rose-bugs only eat *the blossoms of grapes*, but eat cherries, peaches and apples, green or ripe; have never known them to eat pears.

Strawberries are coming into more general culture. For

home use, Triumph de Gand, Downer's Prolific and Wilson are taking the place of Hovey's Seedling. Still some think Hovey's the best. For cultivating strawberries on a small scale, after many other ways, I have found the following to give the best satisfaction :

As soon as the ground will do to work in the spring, set out the vines in beds of three rows, about one foot apart in the rows, and the rows eighteen inches apart. The runners are cut back the first season, and also the second, until bearing time, and the beds must be kept clear of weeds. The runners are now allowed to grow, and not much more care is required, as they will yield but another crop.

My experience in planting trees has been very satisfactory, not losing one tree in fifty. I dig a hole much larger and deeper than the roots require, placing the sod, fine soil and subsoil separate; then put sods in the bottom of the hole, chopping them fine with a spade, and filling in with fine soil to the proper depth of the tree, which should be about one inch deeper than it grew in the nursery. Before placing the roots on the bed prepared for them, dip them in water, (brook water preferred,) and dust them well with fine soil. Fill in about the roots with fine soil, being careful not to leave any open spaces among them. Hand work is the best. Finish off with the subsoil, leaving the earth lowest near the tree. Mulch before dry weather. Use no more water and no manure, except as a mulch. Invariably plant in the spring, and treat all kinds of trees alike.

WM. H. PAGE, GREENEVILLE.

In fruit I have the disadvantage of being a new beginner. I have about fifty varieties of pears, dwarfs and standards. I will state here why I think many dwarf pears fail—shallow planting and allowing them to overbear. I find all pears, set with the union above the ground, become stunted and make no growth; while those with the union set three inches below the ground, grow much more thrifty; cause, pear wood sends out roots and they eventually make good trees.

Of grapes I have about one hundred and twenty varieties

of out door vines. Many of these I have not fruited as yet. For my own use I think Iona, in quality, the best. Of the hardiness of the vine I am not prepared to speak, though with me it has been hardy. The Isabella I think a good grape, but not as early as the Hartford Prolific. Adirondac a very feeble grower, but fruit good. Delaware good. Diana does badly. I have many varieties which I hope to know more about another season. Concord and Hartford very hardy; fruit does not suit me. Some of Rogers Hybrids do well in growth. Nos. 1 and 19 are very good. No. 1 very hardy, but late. No. 4 rotted this season. No. 15 high flavored, but too much of the wild-cat for me. No. 9 very good. No. 22, as I saw it at Ithica, first quality; my vine not fruited as yet. No. 1 much better at Ithica than any here. I consider this valuable where the season is favorable.

Of about thirty varieties of Strawberries I can not say much at present. Russell's Prolific dies out badly in summer; Juncunda won't grow; Jaminet does very well; Triumph de Gand does well; Wilson does well for one crop; I have a seedling of the Wilson which is sweeter, otherwise about the same thing (name, Florence).

Of dwarf Apples I have about fifty varieties—none in bearing; don't think they amount to much.

HORATIO HOLMES, STAFFORD SPRINGS.

My experience in Grape-culture would indicate that it is best to have high mountainous land, with a slope to take the morning sun. Each trellis should be so situated as to get all the sun that can be had. I have about two acres of vines; those on level ground do not yield half a crop.

WILLIAM C. YEOMANS, COLUMBIA.

But a few years have elapsed since farmers have turned their attention, in any special degree, to the cultivation of fruit in its different varieties. Many, and perhaps nearly all, were satisfied with the old natural varieties of their fathers, and desired not to enjoy anything better. Perhaps, too, a prejudice among many against "following new fangled no-

tions," has had its due influence in the prevention of advancement in this matter. But be it said to the credit of the present generation, appropriate attention is now being paid to this important branch of husbandry. The old orchards of "natural" fruit trees are being rapidly "hewn down and cast into the fire," giving place to young trees of approved varieties, or else are being transformed into usefulness by the grafting knife, so that many of the scrubby, unsightly stocks of a few years ago, have become objects of beauty as well as utility. The latter mode of proceeding can, however, hardly be free from objections, as many of the old stocks are at their hearts passing through the process of decay, and as a natural consequence, the same element is transmitted through the branches and stems, to the mature fruit, and thereby premature decay of the fruit will be almost unavoidable; hence a far preferable course to pursue, will be the former, and one which will in the end result in greater profit to the producer. Still other objections can be adduced to the practice of grafting old orchards, unless the trees are very thrifty. For in the first place, in order to hope for reasonable success, the land must be put under immediate cultivation; and upon the supposition that the trees are past their prime, an unnatural effort must be put forth, which in the end hastens the entire destruction of the tree; and thus the labor of grafting is lost, and the farmer finally obliged to re-set with new trees. Now if this reasoning be correct, the better and preferable course to pursue, can easily be discovered; viz., the setting of young trees. It is a noticeable fact, that this course is now very generally pursued.

In the cultivation of young trees, much care is necessary, especially in the setting, which is better done upon a field prepared therefor by cultivation. Without following further with special directions, it will suffice to say, that it adds much to the successful growth of the young tree to continue cultivation until a strong stock is produced; and when that end is once accomplished, little fear of success need be apprehended. The failures are oftener occasioned by the trees

being set in a tough sward, thereby preventing a thrifty growth which must be admitted to be absolutely necessary.

The above applies especially to apples. Of pears, there is not much attention paid to the cultivation of standard varieties. There still remains the old stocks of a variety peculiar to this locality, known as the "Pinneo Pear," which compares favorably with the popular late varieties. Some attention is now being paid to the cultivation of dwarfs, which meets with reasonable success, and in proportion to the care given. Of the peach, its cultivation is now nearly abandoned, and has been for a few years, in consequence of that scourge to that fruit known as the "yellows."

No special attention is paid to the cultivation of the smaller fruits. Quince trees do not succeed at the present time in consequence of some blight.

The soil of this locality is a sort of gravelly loam; our town lies upon the primary formation, and is also exposed to the winds from the north-west.

Of the varieties best adapted to this locality can be mentioned, for apples,—the Baldwin, Roxbury Russett, R. I. Greening, Hubbardston Nonsuch, Peck's Pleasant, Golden Sweet, Bailey's Sweet, Porter and Gravenstein.

Of pears, the Pinneo succeeds well, and is the only good standard variety cultivated; but of Dwarfs, the Duchess d'Angouleme, Buffum, Vicar of Winkfield, Glout Morceau, Seckel, &c., can be named.

The cultivation of the grape is receiving more attention than formerly. It is usually planted in a light mould. The preparation that seems to promise best, is to form an excavation, which fill with old pieces of bone, leather, &c., and cover with some soil, upon which plant the vine. The matter of pruning and winter protection has not been sufficiently tested; some varieties appear to do better, perhaps, with careful pruning; at the same time, nature seems to regulate that matter in other varieties. The same appears to hold true with regard to protection. One thing appears to be certain, that hardy vines will take care of themselves; and, after having tried all ways, I am not satisfied that there is any better way than to

let them do so. First, I have laid down and covered with straw ; then with leaves and a light covering of earth ; and, finally, simply laying down with no covering ; and could discover no advantage over letting the vines remain on the trellis. The varieties best adapted to this locality are Hartford Prolific, Concord, Diana, Delaware, &c.

The varieties of cherries mostly cultivated are Black Tartarian and Siberian or Ox-hearts.

The cultivation of the grape has been much disturbed by the mildew and rose-bugs, either of which destroys the fruit, and no adequate means of prevention has yet been used. Apple trees are occasionally injured by the borer, and the best remedy seems to be to have a watchful eye, and, with a sharp knife, despatch the depredator in his trespass. Our standard pear is somewhat affected by a worm, similar to the borer, that cuts off small branches, and there seems to be no prevention.

The gathering of apples is performed by means of the ladder. The fruit carefully picked in the middle of the day, just before it is perfectly ripe, and sometimes left upon the ground a short time to dry ; or else, at first, put carefully into barrels, filling them so that when headed there shall be a sufficient pressure to hold the apples in their position ; and in this way are sent to market, or placed in the cellar for later sales. The pear is gathered before it is fully matured, and sent immediately to market.

There is probably no part of farm husbandry which affords a greater profit, at so little cost, as fruit raising. After the first ten years but little labor is necessary, except pruning, unless it be that the trees are, as is sometimes the case, infested by the caterpillar, when it is necessary with a pole to eradicate them ; it is said that a swab saturated with kerosene oil is a sure remedy. Aside from this, the amount of labor is comparatively light, while, on the contrary, the increase is large.

WM. W. TURNER, HARTFORD.

All my endeavors to raise pears on quince stocks have

failed, unless such trees were planted in good garden ground, which was kept under constant culture ; even then I regard them only as temporarily valuable, until others on pear stocks can have time to grow. Dwarf pear trees will not succeed in gardens if the soil be a light sand.

The canker-worm has destroyed most of the apples, cherries and plums in this city for three or four years past ; efforts by various devices to secure trees from their depredations have mostly proved ineffectual. The female insect comes out of the ground for the purpose of laying her eggs on the smaller limbs of the tree, either in the autumn—November—or in the early spring—March. She has no wings. The male insect, with wings, comes out about the same time, just before the ground freezes in the fall, or just after it thaws in the spring ; when he has effected the work of impregnation he dies. The female lays her eggs in compact patches on the bark, or in a circle round a small twig, and dies also. These eggs are hatched by the heat of the sun, when the leaves begin to grow, into minute worms, which immediately crawl to the leaves and feed upon them till full grown—some time in June—when they spin down to the ground and conceal themselves a little below the surface. They then assume the pupa or chrysalis state, resembling a grain of rice with a dark spot at one end. Those that are not changed into the insect in autumn are frozen up in the ground during the winter, without injury, and undergo the same change as soon as they are thawed out in the spring. They have hitherto remained a terrible pest to fruit growers from three to five years, and then disappeared for a much longer period.

The ten best varieties of apples and pears for orchard culture or family use :

Apples.—Tart Bough or Early Harvest, Golden Sweet, Porter, Hawley, Fameuse, Gravenstein, Fall Pippin, Baldwin, R. I. Greening, Peck's Pleasant, Roxbury Russett.

Pears.—Bloodgood, Bartlett, Paradise d'Automne, Beurré Bosc, Beurré d'Anjou, Louise Bon de Jersey, Lodge, St. Ghislain, Seckel, Winter Nelis, Lawrence, Glout Morceau.

P. S. BEERS, CHESHIRE.

Having been for the last twenty years engaged in the raising and cultivation of fruits and fruit trees, not only in this place, but in Litchfield Co., Conn., I propose to give you the result of my experience.

The soil has varied greatly in its characteristics, from a light sand to a heavy clay loam.

Planting of apple trees.—Take any good soil that will raise a good crop of corn or potatoes, or if it has been manured and raised either of these crops the previous year, so much the better, as your land is pulverized, and the cost of setting is much less. Stake out your land twenty-five or thirty feet apart each way. Dig the holes twelve to eighteen inches deep and much larger than the roots extend, and throw away the subsoil. If the hole is too deep for the tree, fill up with good surface soil, so that the roots of the tree, when set, shall not be more than two inches under. Pulverize the soil with a hoe that you intend filling the hole with, and, if possible, mix two quarts of fine ground bones with the same. Let some one now hold the tree upright in its place, spread out the roots carefully in their natural directions, and fill in the soil carefully, working it among the roots with your fingers, so that no holes will be left for the air to affect the roots. When the hole is filled to the top of the roots, dash in a pail of water, working the tree a little, so that the water will run down by the side of the tree to the roots. After the water settles away, fill up the hole with earth and press the soil around firmly with your foot.

Stake the tree if large or much exposed to the wind. Mulch the tree, if set in the spring, with coarse manure, four to six inches deep, and further around than the roots extend. This mulch acts not only as a manure, but prevents the ground from drying and weeds from springing up. If trees are set in autumn, use only fine manure around them, to prevent moles or mice from making nests and gnawing the trees, also mound up the earth a foot high around the stem, to prevent injury from water freezing around the stems and prevent mice from girdling them, although mice seldom work where

no grass or weeds are left adjoining the tree. Fresh manure used in the holes for setting trees frequently kills them, but old composts may be used sparingly, mixed with large additions of muck or sods.

The ground should be kept cultivated with potatoes, corn or some low hoed crop, for a few years at least, to produce the best results.

Before setting the trees, cut away all bruised and broken roots to the sound wood, to enable them to heal up quicker for the emission of new roots. Shorten in the top to about one half or one third of the previous year's growth, leaving the head thinned to about five branches. The object of the shortening process is to reduce the top in proportion as the roots are shortened in digging; this throws the sap into fewer buds, which form vigorous branches. Very light soils as well as deep valleys are very uncertain in producing good crops of apples, although the trees often grow with great vigor. I presume one great cause of unfruitfulness in such situations will be found in the great depth to which most of the roots penetrate in search of moisture and nourishment, so that they get beyond or below the very food which they require for the formation of fruit, namely the alkalies and phosphates.

The most productive orchards in this State have a firm sub-soil or a rocky bottom. To the latter class belong the famous apple soils of this town, the rock varying from four to eight feet below the surface.

Some varieties of pears as standards, especially Bartlett and Flemish Beauty, flourish and bear finely on soils too light for the apple.

Early summer apples bear better on light soils than winter varieties.

The soil has much to do with the keeping quality of apples, especially winter varieties. The stronger the soil the better they will keep. Clay soils are also free from insects that prey on the fruit. The plum curculio often destroys large quantities of apples in light soils, puncturing the fruit when as large as a pea and depositing an egg therein, which soon hatches,

and the fruit falls to the ground; the cunning parent knowing well in what soil its progeny will flourish best. No effective remedy has yet been discovered to prevent or destroy this depredator but jarring him into sheets and killing him.

The canker worm has confined itself in this State to the light soils and the immediate vicinity of such soils, the pear being generally unmolested by it.

The most profitable variety of winter apples here is the Baldwin. In the western part of the State, the Greening takes the lead, and usually sells quickest in the markets of this State.

There are some local apples which are believed to have originated here, or near here, which prove profitable, as the Humiston and Tuttle, both winter fruit and keeping well.

Tuttle—a very large, showy fruit; red, and covered with numerous grey dots; oblong, tapering gradually to the eye; stem half an inch long, inserted in a narrow cavity of moderate depth; calyx closed in a shallow basin; seeds enclosed in a large cavity; flesh fine-grained, sub-acid; keeps until March. It should not be recommended for general cultivation until it has been proved in all soils and situations, as it often happens that some fruits of all kinds are adapted only to the peculiar soils in which they originate.

The following is a list of ten varieties of apples well adapted for orchards:

Early apples.—Sweet Bough, Red Astrachan, Golden Sweet.

Autumn.—Porter, Gravenstein.

Winter.—Baldwin, R. I. Greening, Roxbury Russet, in heavy soils; Hubbardston Nonsuch, Tallman Sweet.

There are many other excellent varieties, but none better adapted to a variety of soils and to our markets.

Time to set fruit trees.—October and November, April and May. These two last are best for stone fruits. When a person has plenty of time and lives in the immediate vicinity of a nursery, the very best time is when the buds are ready to burst. They can be set with good results after the tree begins to leaf out, if care is taken to keep the roots moist

until they are reset, using water in setting and mulching immediately.

List of ten varieties of pears for general cultivation :

Standard pears.—Madeline, Bartlett, Buffum, Flemish Beauty, Sheldon, Seckel.

Dwarf.—Louise Bonne de Jersey, Duchess d'Angouleme, Belle Lucrative, Vicar of Winkfield.

Grapes.—What shall we plant? The intense interest that has been manifested in the culture of the vine for the last few years ought to have filled our State with many valuable new kinds. Very many have been tried, and what is the result? Thousands of dollars have been spent for the Delaware, and how few there are that ever have ripened a bunch of this variety? There have been a few vines that have done well, but it is the exception, not the rule. The same may be said of most of the other new varieties.

The Iona.—Sufficient time has not elapsed since its introduction to try it thoroughly in all soils and situations.

Where is our Hartford Prolific and the Concord, those two varieties that every originator of a new kind has vented his wrath upon, and why? because they could not produce a kind so really valuable as these for all soils and situations. More vines are being planted of these kinds in all parts of the Union than of all other varieties.

ELIAS SEVERY, WILLINGTON.

I have been successful in cultivating apples. Soil sandy gravel, exposed to all winds. Best varieties here, Americans, Rhode Island Greening, Roxbury Russet, and White Gilliflower.

D. J. WARNER, SALISBURY.

In the spring of 1858 I set out a small orchard of one hundred apple and pear trees. The land was rather lean and I manured it around the trees, but they did not grow rapidly until two years ago I manured the whole surface and plowed it in, raising potatoes, rutabagas and buckwheat. Since then the trees have grown vigorously. The borer is the great enemy

to my apple trees. Last spring I placed hard coal ashes around most of the trees, and upon examining them this fall, not a single borer was found, but the other trees not thus treated with the coal ashes, were with few exceptions infected with the borer.

E. E. CLARKE, NEW HAVEN.

The soil and exposure for my operations in fruit culture is the well-known sandy drift formation of the western part of this city, which is overlaid with a dark brown top soil and a rather compact light-colored subsoil of about two feet in depth, on an open and level exposure.

The first of my attempts to grow fruit trees and plants on this soil was a heavy application of street and stable manures plowed in about ten inches deep and thoroughly harrowed. Stocks, young trees and plants were then set, but their growth for two seasons, was an entire failure in such ground so prepared. I then cleaned off the ground and prepared it by a thorough trenching after the following plan, which I have always since adopted in the trenching of ground.

A trench three feet wide and twenty inches deep was opened on one side of the lot, into the trench was spread a layer of compost two or three inches thick. This is then with the spade fork worked into the bottom of the trench ten inches deep. Three feet off beside the open trench is set a line; a coat of compost is spread to the line, then with the spade fork the top soil and compost, to the depth of ten inches, is thrown into the open trench evenly, another coat of compost is spread into the second trench, half opened, and then ten inches more of the sub-soil with the compost is thrown on, which fills up the first trench six inches above the natural surface, and so continued until the whole plot is thus worked. The last trench of course must be filled by wheeling around or across on planks the soil thrown out in opening the first trench.

The result by this mode of preparing ground is to thoroughly reverse the top and sub-soils; thoroughly mix the compost through the whole mass, which is about three feet deep, in its

light condition. The seeds and foul stuff of the surface are deeply buried, the clean sub soil brought to the surface, so that a soil is thus artificially made that is of easy and clean cultivation, and one that will effectually resist excessive droughts.

Entire success was the result now in the growing and fruiting of standard and dwarf pears, hardy grapes, raspberries of various kinds, strawberries, currants, etc.

As economical and good materials for composts I have generally employed inland muck, ashes and remains from burned buildings, sods from the fences and road-sides, stable and hog manure largely adulterated with forest leaves, poultry manure and night soil, all heaped together, fermented, turned and mixed.

Substances like forest leaves, turf and muck, at easy command with every farmer, in some way incorporated in great proportion with all his animal manures in a fresh condition, would be a basis for far more successful farming than carting miles from the city fire-fanged refuse at the prices paid, sea-grass from the sea shore, or buying the manufactured or commercial manures as they are called, under their different names.

The Pear.

For profit and successful culture of trees and fruit in ground prepared as above, I would plant as standards, two or three year nursery trees, in rows five feet apart and two and a half feet apart in the rows.

From time to time (as good sized and bearing trees are always in demand to be planted in similar prepared ground) I would dispose of or remove each alternate row, and three out of every four in the remaining rows, so as to leave the trees standing ten feet apart each way.

The dwarfs I would plant in rows three feet apart, if small size, and two feet in the rows. From time to time remove each alternate row and two to one on the remaining rows, so as to leave the remainder standing six feet apart each way.

I practice top dressing with the compost once in two years,

late in the fall, with spading or stirring the surface with the cultivator in April, clean culture, systematic and thorough heading in and pruning, and thinning out of surplus fruit on those trees disposed to overbear, and avoid planting vegetables or small fruit among them.

For Varieties as Standards.

Beurré Giffard, Bartlett, Flemish Beauty, Doyenne Boussock, Beurré d'Amaulis, Seckel, Louise Bonne de Jersey, Tea, Sheldon, Noiveau Poiteau.

For Dwarfs.

Louise Bonne de Jersey, Doyenne Boussock, Beurré d'Amaulis, Urbaniste, Noiveau Poiteau, Belle Epine Dumas, Beurré Superfin, Duchess d'Angouleme, Vicar of Winkfield, Doyenne du Comice. I would add to these lists all the good varieties that will keep after New Year's.

The Grape.

The progress attained in this country within a few years in this important fruit in the new varieties suited to vineyard and general culture, is of importance worthy the immediate attention of every cultivator of the soil, and an era thereby is at hand, calculated to produce the greatest benefits, both moral and physical.

It is in the power of the cultivators of Connecticut, from the improved varieties of the grape now at hand, within the short space of five years from the time of planting, to produce a greater and more uniform quantity in successive seasons, of fruit and pure juice per acre, than the quantity of apples and cider that can be produced on equal ground, after waiting a period of fifteen or twenty years. The commercial value of the product of the vine and its purity, compared with the produce of the apple, all can readily comprehend.

The pure and cleanly juice of any of our hardy grapes, even the wild Fox varieties, without admixture with sugar or any other substance, may be kept perfectly, without acidulat-

ing, as a mild and healthy beverage, which should be produced superabundantly, sufficient to substitute for all the deleterious beverages unfortunately in excessive use. By exposure to the atmosphere, a vegetable acid or vinegar would be obtained, superior to any that we now have.

In vineyard culture of the grape, a deep stirring and movement of the soil is unquestionably of the greatest importance, incorporating the necessary amount of the compost according to the condition of the soil, with annual top dressing when the vines come into bearing, and clean culture, without allowing any other plants to grow among them.

Wire trellises, six to eight feet apart, with the plants set seven to eight feet apart on the trellis rows, is the system of training that experience has generally commended. As the most reliable varieties suited to the locality of Connecticut for general cultivation, I would name the Isabella, Concord, Hartford Prolific, and Clinton. The Ives' Seedling, recently brought to notice, is recommended as the most valuable of any for wine. Probably the greatest acquisition to the list of new grapes are the varieties brought before the public by the systematic efforts of Mr. Rogers, of Salem, Mass., in producing the list designated by numbers from one to near thirty, called hybrids, produced by fertilizing the blossoms of our native kinds of the *Vitis Labrusca* with the pollen from the flowers of the foreign, or *Vitis Vinifera*. The growth and habits of many of them, and their fruit certainly indicates such existing relations. From experience with a number of these kinds, and observation in other gardens, they appear promising and valuable, and some of them bid fair to surpass the other varieties above named.

The Raspberry.

The black-cap or thimble-berry, class *Rubus occidentalis*, I have found one of our valuable small fruits, susceptible of great improvement by garden culture of the wild plants. By reproduction by seedlings they follow the parent type quite uniformly; all the seedlings are regular bearers, now and

then a difference of two to four days in time of ripening, and usually but slight difference in size of fruit with same culture.

Although I have raised a large number of seedlings of this class without apparent improvement over those of usual garden culture, the largest in plant and fruit of this class I have ever seen, is a chance seedling that came up on my place a few years since.

The berries are juicy, with small seeds, and five-eighths to three-fourths of an inch in diameter. I have named it the New Haven Black Cap. But few plants have yet been produced.

The Antwerp class (*Rubus idoeus*) is destined without doubt to rank of greatest importance in the small fruits when we reproduce new varieties that are perfectly hardy and healthy, and of size and quality of fruit equal to the large and excellent foreign kinds that have been from time to time introduced here, though not adapted to extensive culture, being unsuited to the climate. Having produced and fruited a large number of new seedlings of this class, I have selected one of them as the nearest approach to the qualities desired, which I have somewhat fully described in published circulars.* A number more are yet on "probation." The fruiting of the hardy raspberries is produced with less severe labor, and in greater relative quantity, than most any of the small fruits.

From its adaptability to preserving, retaining more of its

* CLARKE RASPBERRY.—*The Plant*.—Hardy; canes very large, six to ten feet high, erect and strong; branching where isolated, wood highly colored bright reddish purple; buds large and projecting; spines numerous at base, scattering above. Leaves coarsely and unevenly serrate; wavy when young, but becoming flat and smooth with age; deep shining green above, and silvery white on the under surface. It does not drop its leaves in dry hot weather, as most kinds do, but retains its full and beautiful foliage until late and severe frosts.

The most striking and novel feature of the plant, is the great size and length of its fruit spurs or branches, which are from twelve to thirty inches in length, with full clusters of fruit at every axil. It will probably prove to be a greater bearer and producer than any other variety yet known.

The Fruit.—Is of the largest size, regular in form, obtuse conical, separating very freely from the receptacle, even before fully ripe,—firm, and will bear carriage well, when picked at the proper time,—grains medium, color bright crimson, juicy, of the highest flavor, sweet and rich. Season, from 10th of July to 1st of August.

natural flavor than any other preserved fruit, it may at all times and seasons, be abundant, and of commercial importance. In the successful culture of the different kinds of the raspberries, employ deep tillage in a deep, rich, loamy soil, with abundant compost in cool exposure, such as a northern or western slope, avoiding a cold, wet, or clayey soil, unless for multiplying plants, which in that case would be at the expense of the fruit. A single slat or wire attached to stakes is preferable to stakes alone for tying the fruiting canes.

D. D. COLEY, WESTON.

I have about three hundred apple trees in bearing. I think that land that will bear good corn, will bear good fruit. Best varieties, Baldwin, Greening, King of Tompkins County, Fall Pippin, Green Pippin, Roxbury Russet, Vandevere.

E. A. HOLCOMB, GRANBY.

Have tried most of the fruits recommended for general culture; more than one hundred varieties of apples; seventy-five of pears, and fifty of grapes.

My homestead, sixty acres, is half meadow, on the Salmon Brook; soil a black mold, with sandy subsoil. Apples do well here. The other half is part light, sandy loam, with a gravelly subsoil; part heavier loam, with some stones; very little clay on my place, and very little muck. My fruit garden, of three acres, has a southern and eastern aspect; soil rather dry and light.

I am almost disgusted with all dwarf fruit trees. I think they are a failure generally; not but that I would, under some circumstances, grow them as an ornament; but they can never pay. We have plenty of pears, that bear early enough, and full enough, quite too young, and kill themselves by overbearing, if the fruit is not plucked off. Think of a Bartlett dwarfed; nonsense! My best pear is the Flemish beauty; it has but one fault; the wind sometimes blows them off half grown; but even then they will ripen tolerably well.

A list of ten; my choice from experience. Doyenné d'Ete,

Rostizer, Bartlett, Flemish Beauty, Sheldon, Belle Lucrative, Beurré Bosc, Seckel, Winter Nelis, and Beurré d'Aremberg. May change my mind on further acquaintance.

I take more and more pains about setting trees; make the ground rich as for a premium crop of corn; give the roots room, and a soft bed of rich loam; manure as mulch only. When the trees get well established, and begin to bear, lay it down to mowing, and top dress every year. In this way, I think the trees are less likely to be blighted; not so thrifty, but hardier.

My best apple is the old Baldwin. I think it will be some time before it is supplanted. I have been trying to find its equal, but fail. My list of ten would be; Red Astrachan, perhaps the Primate, a better eating fruit, is equal, but not as early; Golden Sweet, if the Sweet Bough does not supercede it; for autumn, the Pomme Royale is my favorite and the best eating apple I know of; Porter, perhaps Gravenstein, Connecticut Wine Apple; perhaps the Wine Apple of Coxe, is equal, but little known here; it is so nearly like the Hubbardston, that I would not care for both; Hubbardston Non-such, Fameuse, Rhode Island Greening, Baldwin, Locy, Northern Spy, and American Golden Russet.

The following fail here: Westfield Seek-no-further, Golden Swaar, Newtown Pippin, Esopus Spitzenberg, and Blue Pearmain.

I prefer planting all trees in the spring; clean culture till they are well established.

As for insects, we are never much troubled with the canker worm; caterpillars are troublesome, but not triumphant. There is no remedy but killing them, either by destroying the eggs in winter, or when they first hatch. The borers, I do not know much about, but my worst enemies in fruit culture are the curculio and the birds. I can raise plums only in my poultry yard, and the birds take all my early grapes.

WILLIAM OSGOOD, POMFRET.

I have lately set out a small orchard, and about one-half are Roxbury Russets; most of the remainder, early apples.

My reason for setting so large a portion of Russets is, that I have noticed that at all the fruit stands in our cities, in the months of May and June, we see no apples but Russets. We want various kinds for family use, but for real profit I know of no kind of apple that will keep as well, and always bring a good price in the spring. Our land here is very well adapted to apple growing, but pears want a good deal of nursing, and our winters are too hard for peaches. I have noticed for several years that when the thermometer gets ten degrees below zero, we have no peach blossoms the next spring. I have one tree done up in hay, which I think will blossom next spring.

A. F. WOOD, WEST HAVEN.

Have had several years experience in raising fruit in a small way, on a very sandy soil, and bleak exposure. When I purchased the land ten years since, it was so poor that the crop of white beans raised on it, I gave for the gathering.

I began by setting out apple and pear trees, as standards; digging the holes but little larger than necessary for the work; if any root was longer than I wished to dig the hole, I shortened it, but in no case do I turn or bend over the roots. If I could direct as to size of hole, I should say six feet in diameter, and roots long enough to fill it. Always lay the roots as near natural as possible. I consider the above all the rules necessary to the successful transplanting a tree. I then tilled with successive crops, of potatoes, corn, rye, and grass, giving each a bountiful supply of barn yard and stable manure, mixed, and never planting or sowing within six or eight feet of the trees. The trees are now bearing good crops, and growing finely. My next operations were in dwarf apples and pears, grape vines and strawberries. These all require nearly the same treatment in setting out, and preparation of soil, which should be what is called a good garden soil; yet any soil will do if made fine by ploughing, and well manured. In setting out, I dig the holes but little larger than the roots; in this lay the roots, spreading them evenly as they grow, and shortening all fibres to the limits of the hole; I then use from two to four quarts of bone dust, shaken among the earth, as I

fill up; also add all the old leather and whole bones I can find around the place. I find nothing like bone dust for these roots; depend upon it, in my soil nothing will compare with it. The essentials of pruning trees are to keep the head open, and in standards to have the head formed high enough to plough under without interfering with the lower branches. In dwarfs, where the hoe only is used, the branches should be formed eighteen inches from the ground, but as trees usually come from the nursery, no particular style can be adopted as to training. In pruning, be careful to shorten the branches so as to have the lower buds start. I usually shorten two-thirds the new growth. I can only approve of dwarfs in garden culture; for the orchard, to be set between the standards, I think them wholly unfit.

Grape vines I set the same as the dwarf trees, using plenty of bone dust. I train but one vine the first year; this I shorten in the fall, to thirty inches, and allow two branches to grow. These I shorten to four feet, and lay them horizontally. I train from these ten upright canes, as bearers. These I shorten annually, and frequently take the cane nearest the fork of the upright, for a new horizontal. I find new vines to bear both better and larger clusters of grapes. It makes no difference as to the height the horizontals are allowed to branch off, but they should never be nearer the ground than thirty inches. There has been a blight upon the grape vine for the two past years, especially the Isabella and Creveling. The leaves dry and fall off, when the berry is near its growth; consequently it does not ripen, and if it colors it is tasteless. On my Diana the berries continue to grow till the frost cuts them off, but do not ripen. I notice one thing peculiar, that one branch of an Isabella, which is trained under the cornice of the house, always ripens in good order, when the rest of the vine is wholly unfit for use; even that part of the branch which does not reach the cornice is affected. The cornice shelters it from the north-east wind, but other vines which are sheltered from the north-east wind with no cornice, are affected. Burying them in winter is no protection.

The vines least affected, and which I would recommend, are

the Hartford Prolific, Concord, Rogers No. 15 and 19, and the Diana, although the last is affected some by this blight.

Of Pears, of twenty-two varieties I have tried, I would recommend the Madeline, Bartlett, Seckel, Buffum, Beurré Giffard, Duchess d'Angouleme, and Vicar of Winkfield. The Glou Morceau might be added.

Of Apples, for best crop I should say Red Astrachan, Summer Bough, Rhode Island Greening, Baldwin, and Roxbury Russet. Other varieties have proved poor bearers, with me.

Strawberries should always be cultivated in rows or hills. If in rows, they should be thirty inches apart, to allow for the pickers, and for cultivation. In hills, they should stand sixteen inches apart, and two rows of hills together, and then a two and a half feet walk left between. I have a bed coming into bearing next season, set out two rows two feet apart, and one row between, the plants standing alternately. I then left three feet for path and culture, and then another bed. A lad can go through and cultivate them as easy as hoeing corn. I set this bed last spring; it is composed of ten of these small beds, leaving nine spaces or paths between. On these I have raised between thirty and forty bushels of carrots. The whole bed is a little over one-eighth of an acre. I always set my plants in the spring, and allow no plant to bear the first season. I take two crops off, and then plough up and use as a turnip bed; thus I lose but one year, but that year I have other crops besides the berries. One thing should be observed; never cultivate a bearing bed in the spring; hoe it after it has done bearing, and keep clean through the summer, but not afterwards; your yield will be neither as large, or the berries as good size, if you do. Winter covering, I think, is objectionable, for any kind that can stand out, for it retards the early bearing, and thereby shortens the season. For a marketing berry, the Wilson has done the best with me. Off from one-eighth of an acre I have sold at wholesale \$150, exactly, this past summer, besides what we have used. I think a man should take over four thousand quarts from an acre, and can with care, take five thousand and over.

SOLOMON MEAD, NEW HAVEN.

In fruit culture I have had a little more than a dozen years of experience. With some varieties, and at some times, that experience has been quite successful and satisfactory. The soil is light, sandy and dry, and suffers quickly from drought. It is scarcely ever too wet to plow when the frost is out. Exposure is complete without any protection. The kinds of fruit which seem to succeed here are strawberry, raspberry, blackberry, only in part, usually too dry for a good crop; currant, grape, pear. Soil is rather dry for the apple and quince, yet, under high culture, a good quality of fruit is obtained. The peach and plum are grown with variable success and in moderate quantities. Thorough cultivation with liberal fertilizing seems essential to any sort of success in fruit growing.

In strawberry cultivation my early experience was to trench the ground from two to three feet deep, mixing soil and fertilizers the whole depth; but of late I regard it a much more economical method to thoroughly mix fertilizers with the soil with the plow, and subsoil plow, repeating the same till the soil is of fine tilth, which can be done to advantage in the fall, where plants are to be set in early spring in rows three feet apart, and plants from twelve to eighteen inches apart in the row.

For raspberries and blackberries I trench plow, with plow, and subsoil plow, and thoroughly incorporate a liberal supply of fertilizers; plant in rows six to eight feet apart; after cultivation, of keeping clean and pruning are to be attended to as occasion requires.

For planting trees, I usually dig holes from four to six feet across and two feet deep, and refill with surface soil and good compost, into which the roots of the tree are to be put. Early spring regarded as the best time to change the location of a tree.

As to winter protection, it is much the best to grow such fruits as need little or no protection. Yet but few varieties of fruits are so hardy as not to be benefited at some times by some kind of protection. The Antwerp Raspberry I covered

with soil, bending the canes in one direction, for covering, and to remain thus covered till the cold frosts of spring are past, when covering should be removed.

Strawberries may be covered with straw, coarse manure, leaves, stalks, sawdust, or something of the kind which may be most convenient. If protected with snow, other protection does not seem so much of a necessity, yet, to be quite safe, it requires some care neither to have too much nor too little covering. Rapid growing fruit trees are often benefited by a little straw protection for the bodies, bound with a little cord to keep it in place, preventing the rapid change of temperature which sometimes kills the bark and wood on the south side of vigorous growing fruit trees.

A large portion of the diseases of growing plants are caused, in my opinion, by animal or vegetable parasites. Many of these are too small to be observed or noticed particularly, without special attention and the aid of powerful glasses. The small white specks on pear trees, frequently known as lice, I found, by the aid of a highly magnifying microscope, to be but the nest in which were a large family of animals in different stages of growth, and who doubtless get their living from the vitals of this tree. The potatoe disease is here declared to be a vegetable fungus or parasite growing on the stalks of the plant. The grape has doubtless like difficulties to encounter, and, were I permitted to digress for a moment, my own experience and observation fully justify the belief that many human diseases are but the growth of parasites in the system.

Some of our best pears are Lawrence, Winter Nelis, Urbaniste, Bartlett, Seckel, Flemish Beauty, Beurré Diel, Glou Morceau, Beurré Bosc, Duchess d'Angouleme, Easter Beurré, Belle Lucrative, Beurré d'Amalis, Louise Bonne de Jersey. Three times the above number are grown in our city, but not much for the market—chiefly in private gardens.

Some of the best apples known to this locality are R. I. Greening, Baldwin, Vandevere, Peck's Pleasant, Gravenstein, Red Astrachan, Sweet Bough, Roxbury Russet, Fall Pippin, Jersey Sweeting, Early Harvest. Other varieties might be named, but the above are among the best. The varieties of

apples are not nearly so numerous as the varieties of pears in this locality.

On gathering, preserving and marketing fruit.—Most varieties of fruit are best when ripened or matured on the growing plant, except, perhaps, a few varieties of pears. Carefulness in gathering, so as not to bruise, mash or otherwise injure, is a most important part of fruit raising, and especially for the market. Pears, apples and grapes are preserved by duly regulating the temperature of the place where they are kept, and some have had good success by packing the fruit in sawdust, sand well dried, or something of the kind, to keep the air from circulating about their fruit, while others put grapes particularly into boxes and cover with cotton, with good success. Many smaller fruits require to be marketed when ripe, or to be preserved in air-tight vessels, with the use of sugar, more or less, according to the taste and desire of the grower. Small fruits are marketed usually in quart or pint baskets in this market. Costs and profits of fruit culture are variable, so far as my experience goes, and it is hardly possible to give any results, except in a general manner. My experience would decide that the cost of small fruit culture is far more than of the ordinarily cultivated crops, as also often are the profits and returns. But, not unfrequently, the fruit crop, for some cause or other, fails to meet the expectation of the grower, very much depending on the season, which is beyond his control. A persevering and earnest zeal in the cause is very essential in fruit growing, which, accompanied with close observation, will usually secure fair success.

The more commonly cultivated varieties of strawberries for the market are Wilson's Albany, Triomphe de Gand, Hovey's, Early Scarlet, Crimson Cone, Boston Pine and Walker's Seedling.

Raspberries.—Franconia, Antwerp, Native Purple, Black Cap. A new variety, known as Clarke's Seedling, is receiving the highest commendation as to hardiness and good quality of fruit, and is likely to excel other varieties known in these parts.

The New Rochelle blackberry has only been cultivated for the market in any large quantities here.

Currants.—Large Red and Cherry are mostly grown.

Grapes.—Concord, Hartford Prolific, Isabella, Catawba, Diana, Delaware, Rebecca and some others are grown in these parts, in open culture.

D. S. DEWEY, HARTFORD.

I respond to your circular briefly on one point connected with fruit culture.

I would by all means advise *localizing* fruits of all kinds; that is, those fruits, *and those only*, should be grown, for profit or for market purposes, which succeed perfectly in any particular locality.

For example, if asked for advice on this particular point by any young man who intended to make the growing of apples for market a specialty in this (Hartford) county, I should recommend him to plant nine-tenths of his orchard with the Golden Sweet—always productive and reliable *here*; always saleable for cash, at a fair price; and easily and quickly gathered and disposed of, in barrels or in bulk.

Ten best apples for family use or general cultivation:

Early Harvest, Golden Sweet, Primate, Gravenstein, Peck's Pleasant, R. I. Greening, Baldwin, Roxbury Russett, Talman's Sweet, Pearmain.

Ten best pears for family use or general cultivation:

Tyson, Pinneo, Bartlett, Flemish Beauty, Louise Bonne, Seckel, B. d'Anjou, D. Boussock, Vicar, Winter Nelis.

J. L. BUCK.

Apples.—Soil, a sandy loam, with a gravelly subsoil; surface rather level, slightly inclining to south-east; manure heavily with barn-yard manure; plow from eight to ten inches deep. Planted trees thirty feet apart, which I consider rather too close; trees of eighteen and twenty years' growth now reach together. Young trees should be well cultivated. Potatoes, turnips, beans and small fruit may be cultivated between the rows and more than pay expenses of cultivation,

and, at the same time, keep the trees in a nice growing condition. Corn or winter grain should not be planted or sown in an orchard, because it shades the ground too much. The sun should have free access around the trees, to keep the ground warm and in a healthy condition. Some may ask how long will you cultivate an orchard in this way? until the trees are large enough to shade the principal part of the ground; but do not at any time be afraid of your manure, either dug in around the trees or left on the surface.

Pruning.—This depends upon what kind of a shaped tree you wish to form, whether a low, broad head or a high, lofty one. I prefer the low one, for you can pick the apples more easily than on a high tree. Prune in autumn or early spring; thin the head of the tree so the sun can have free access all around and through it, and your fruit will be much sweeter and fairer, if not so many in numbers.

The only insect worthy of notice is what is commonly called the apple tree worm, which swarms by millions. The only remedy which has been of any avail has been a slow and tedious one. Take a pole, split the end, insert a piece of cloth four or six inches long and twist them out of their nests and crush them on the ground. Do it early in the morning and you will find most of them in their nests.

Fruit when gathered should be perfectly dry, picked and placed in barrels if intended for market. Fill the barrels even full, place on the head, and, with a lever, press it to its place. Apples put up in this way may be shipped any distance without damage. If intended for home use, carry directly to the cellar, place in bins from four to six inches deep. I think they keep better this way than if placed in larger quantities. Apples on warm, sandy soil will ripen earlier than those on cold, damp land, and should be gathered earlier. I think one great trouble with apples not keeping is, they are left on the trees too long.

Best varieties.—Early—Bough apple, sweet; Strawberry, slightly tart. Autumn—Fall Pippin, slightly tart; Red Astrachan, sour. Winter—Winter Greening, sour; Baldwin, tart; Golden Red, tart.

CHAS. E. B. HATCH, VINEYARD FARM, SHARON.

P. O. Cornwall Bridge.

Select list of Apples.—R. I. Greening, Baldwin, Roxbury Russet, Yellow Belle Fleur, Golden Russet, Tompkins County King. Wagener, Canada Reinette, Fallawater and English Russet.

Other good varieties are Red Astrachan, Pound Apple, Fall Pippin, Excel, Vandevere, Peck's Pleasant, Northern Spy, Jonathan, Gravenstein and Hubbardston Nonsuch.

Of peaches, we have had a good crop, except when the mercury has fallen sixteen or eighteen degrees below zero, as this temperature always kills the peach buds. Our plan is to keep the ground well tilled and lightly manured, putting on a slight sprinkling of salt, spring and fall. Remove all dead limbs, and keep out the borer by removing all gummy substance near the surface and below, and cutting out the borer that may have entered the bark.

With plums we were formerly quite successful. We sprinkled salt under the trees in the spring, and, on washing days, poured the hot suds on the ground under the trees. When the trees were in blossom we sowed plaster over them, and repeated it every few days for three or four times. This was done when they were covered with dew. I thought I would do a little more for the insects, so I took off about four inches of the soil under our trees in the fall. The consequence was the trees all died.

Our pear trees are mostly young, few as yet having come into bearing. Some of them are on sandy soil, some on loam with gravelly subsoil, and others on heavy, moist and clay subsoil. We have both standards and dwarfs. We have been successful with dwarfs whenever we planted them with the connection between the quince and pear ten or twelve inches below the surface of the ground. We keep our ground well tilled, manuring it every spring, and raise beans and other vegetables among the trees.

Among the varieties that have borne best we have Louise Bonne de Jersey, Bartlett, Beurré Bosc, Flemish Beauty,

Seckel, Rostizer, Beurré Diel, Doyenné d'Ete, Autumn Melting and Duchess d'Angouleme.

Among grapes, the Delaware is the best for the table, and for wine, that can be grown in our latitude; yet there is but very little soil in our locality adapted to this grape. It requires a deep, rich, heavy soil, with a warm exposure, to bring it to perfection. We planted one thousand Delawares, on dry loam, with a gravelly subsoil. The result was, lost nearly all.

The Isabella, seldom if ever, fully ripens here, and this is the case with the Rebecca and Catawba.

The Diana ripens unequally, some berries being green, while others are fully ripe, in the same cluster, and never can make a profitable wine grape here.

The Logan is an early prolific grape, of inferior quality.

Herbemont, good for nothing here, but to freeze to death in the winter.

The Concord is a very good table grape, when fully ripe, and makes a very fair wine, but will not bear distant carriage to market.

The Clinton bears well, and is a good wine grape; must not be highly manured, as it does not fruit so well. Wine made from this grape is longer in maturing than that made from most others. The Concord and Clinton are the only varieties that do first rate on dry or gravelly soils.

The Early Northern Muscadine is a good table grape, and makes a wine that is only surpassed by the Delaware. The berries drop when fully ripe, and this fault alone prevents it from becoming a universal favorite for vineyard planting.

Hartford Prolific bears well for two or three crops, and then fails.

The Iona promises well, yet we can say but little about it, as we have never fruited it. Hope it will sustain the high character given it by Dr. Grant and others.

We have a seedling on our grounds that is but little inferior to the Delaware, with berries twice as large. Ripens early; flesh colored, with light bloom; perfectly hardy; young wood never freezes, or dies back.

Our farm is on the west side of the Housatonic river, in the town of Sharon, about one mile north of Cornwall Bridge. It lies in a kind of basin, surrounded by hills, with a southeastern exposure; no winds except from the south. Soil loamy, with a gravelly subsoil. We have been at considerable expense in testing worthless kinds of grapes, that were highly recommended by nurserymen, and we have named above all that we have found meritorious.

GEORGE SANGER, CANTERBURY.

I have planted several hundred apple-trees, in my time. It has been my practice to stir the ground often with a plough, and to cultivate potatoes or turnips among my trees. I will mention the best varieties of apples for this region, in the order of the seasons:

Summer; Golden Sweet, Red Astrachan.

Autumn; Shepard's Sweet, Cogswell's Pearmain, Porter, Gravenstein.

Winter; Baldwin, Roxbury Russet, Rhode Island Greening, and King of Tompkins County.

The Shepard's Sweet is a splendid apple, ripe in September, and will keep till December; well known in this vicinity; grows rapidly, and is a good bearer.

F. TROWBRIDGE, MILFORD.

Fruit trees, especially pears, do not do well near the salt water, but in the village, one mile from the shore, pears have grown thriftily, and borne well for a number of years. The soil also seems well adapted to the growth of the apple, and this year there were more apples in Milford than in any parts around us. I have a young tree of Hubbardston Nonsuch, which bore this year about three barrels. Though this is an early winter variety, we have them now in perfection, kept in a dark cellar, at about forty degrees of temperature.

I find that in planting trees, great care should be used in cutting the ends of the roots with a clean cut. I do not care much how close they are cut. I am partial to close cutting,

both above and below ground. Dig large holes, and after the roots are covered with rich earth, pour in a pailful of water to settle the dirt about the roots.

Among new fruits the Clark Raspberry promises well.

E. M. & J. E. LEE, GUILFORD.

We have frequently experimented in the culture of Pears and Peaches, but always without success; and are of the opinion that the climate or soil in this particular locality is unfavorable to their growth.

With the culture of Apples we have been very successful. The principal orchard is on an inclined surface, sloping westward, and protected on the east by an elevated ridge. The trees were grafted in the orchard some years after planting; grafting in the nursery is preferable, because in the former case there is a resulting hindrance to growth of trees. Soil, a gravelly loam, has not been ploughed since the trees commenced bearing, thirty years ago. We are of the opinion from experiments in other orchards, that ploughing is not to be desired. Stable manure and sea shells, especially the latter, have been successfully employed as fertilizers. A large flock of sheep have also been allowed to range through the orchards, during the winter months. We have practiced pruning the trees in the month of February; that being the month in which the sap is most inactive. Experience has shown that the inside limbs should be thoroughly pruned. We have been very successful in grafting old trees, on different parts of the farm; many of which are thirty or forty years old. Formerly they were worthless; have been grafted within twelve years, and now bear from ten to twelve bushels of excellent apples, to each tree. Cost of culture is trifling, except in the matter of gathering. Our practice has been to pick the fruit and spread the same in cellar bins, leaving the apples in no instance more than one foot in depth. The orchards have produced from one to two tons of hay to the acre, annually, for thirty years, without tillage or fertilizing, and the apple crop this year was worth three hundred and seventy-five dollars.

The following varieties, especially the two first named, are best adapted to this locality, viz: Peck's Pleasant, Rhode Island Greening, Monmouth Greening, Boston Russet, Newtown Pippin, Baldwin, and Esopus Spitzenberg.

DAVID BEECHER, BIRMINGHAM.

There has been much written concerning the pruning of the apple tree, as to the time, manner, &c. Still, I see, as I am about, that many persist in pruning when it seems most convenient for them, whether it be fall, midwinter or spring. My experience teaches me that the apple tree should not be pruned before May. When the tree is full of sap, wood cracks less, and heals over much sooner, than when the cold of winter has been acting upon the newly exposed wood.

In an old orchard that I trimmed thirty years ago, I can plainly see the bad effects of fall or winter pruning. A part of said orchard I left till spring, till such time as I wanted to graft, and I could see a marked difference in the healing over; strongly in favor of spring pruning. I think, also, that trees pruned in the fall or winter are much more apt to die, decay commencing where the limb is severed; the wood cracks, rains get in, and decay commences.

T. B. WAKEMAN, WESTPORT.

The apple is the most valuable fruit that we have. If I was going to raise them for market and profit, I should not plant more than four or six kinds; Baldwin, Greening, Large Russet, English Russet, and Buck-meadow. But for family use we should, of course, want some early kinds.

I used to dig quite large holes to set trees in, but have given up the practice. Give the ground good cultivation, and dig the holes large enough to place the roots in a natural position, and give them surface manuring. As far as my experience goes, trenching does no good. The nearer the top of the ground you can make the roots grow, the better. It stands to reason, that when the ground is trenched two feet deep, and the best of the soil turned under, the roots must go down away from the air.

I have fifteen hundred pear trees, both dwarfs and standards. The dwarfs are a humbug, but I believe there is more money in a good pear orchard, well taken care of, than in any other kind of fruit. The pear wants rather deep, heavy soil. I sold three hundred dollars worth from my trees this year, besides what we used in the family. If you plant for profit, you will want but few kinds; Bartlett, Lawrence, Flemish Beauty, Louise Bonne, Duchess, Beurré Diel, Seckel, Vicar of Winkfield, Buffum, and Dearborn's Seedling.

I have seven acres of grapes, some of them in bearing. It is difficult yet to tell which are the most profitable kinds to plant. The Concord and Hartford Prolific have fruited well with me. I am much interested in the Iona and the Israella, and they will be the best grapes to plant, if they fruit as well as the Concord.

I have two acres of strawberries. I think we can compete in this State with any part of the country in fruit raising.

REMARKS BY THE SECRETARY.

Successful fruit culture in Connecticut requires ability, labor and care. The difficulties which attend it are not confined to our own State, but widely extended, so that we may expect that if the labor and expense of cultivating fruit is increased, so will be the demand.

Much depends upon the selection of a proper soil and exposure and a choice of varieties adapted to the locality.

The soil may vary from a light sand to a heavy loam or clay, but it must be at least of moderate fertility, and must have a dry bottom. Where there is not natural drainage, it must be provided artificially, or cankered, mossy branches, and imperfect fruit, will surely show that there is something wrong. To secure drainage, and avoid late frosts, select a hill location, and obtain the shelter of forest land, or plant belts of evergreens for this special purpose. The soil should be deeply worked and well enriched before planting an orchard. The holes should be dug no deeper than the whole is plowed or dug. If a hole is dug into a tenacious subsoil, it will hold water like a bowl. Rather make a slight mound around a tree

to cover its roots than to sink it into a water-tight basin. Culture for one or two years with corn or potatoes forms a good preparation for planting an orchard, as then no compost is needed and there is plenty of the best earth to fill in about the roots.

After planting, cultivate for a few years with potatoes or other roots, taking pains to plow very shallow as far from the tree as the roots extend. The roots should be encouraged to run near the surface and not forced down into an uncongenial subsoil. If the orchard is the main object, keep off all grain crops, especially rye. Grass may be allowed, and pasturage is better than mowing if the trees are not broken by animals.

When the trees have attained a good size, so that sheep will not rub them or gnaw the bark, they are the best stock to feed in an orchard, except swine.

Cultivation encourages growth and fruitfulness, but the most enduring orchards have been kept in grass. If the soil is kept rich and the turf loose by frequent top dressing, and the heads tolerably low, there will be little need of plowing.

Standard pears may be treated like apples. Dwarf pears must have garden culture, but if the soil is too rich, or an excessive growth is secured by severe pruning, both kinds are liable to the blight, a most fatal disease.

After much discussion, it is admitted that the warm days of winter and early spring is the time for pruning. Prune moderately every year to secure an open, well balanced head. Use a sharp axe or knife, or fine saw, and make a smooth close cut. A stump left to die back will rot and make a hole. If timely attention is given it will rarely be necessary to remove large branches; and if a limb has got to come off, the sooner the better.

The apple tree has no specific diseases to contend with. Poverty of the soil, its saturation with water, and the ravages of insects, or the effects of the season, often give it a sorry appearance, but it is as hardy and will bear as much abuse as most of our native forest trees. The pear tree is liable to the blight, most commonly occurring when there is a rapid and

late growth. A dry soil, of moderate fertility, securing firm, well ripened wood is the best preventive.

The peach tree has the yellows, a contagious, hereditary disease, but little understood. All affected trees should be immediately destroyed.

The plum is liable to the black knot. Cut off and burn every knot as soon as it appears. Some varieties are nearly exempt.

The cherry is subject to the bursting of the bark, forming large bunches, but whether it is of the same nature as the knot in plums, or is the effect of the winter, is not fairly settled.

The grape has the mildew, a fungus growing upon the leaves and fruit. Very various theories are advanced by cultivators to account for it, and still more various are the remedies proposed for its cure. As yet no desirable variety has been found entirely exempt from it, and there are very few localities where it has never prevailed. The plan which has been successful in one case has failed in another, till there are none that have proved perfectly reliable. Under glass, where we control the temperature and the moisture, that is, the climate, it is prevented by the use of sulphur, or sulphur and weak lime water. Here, even the most delicate foreign varieties, which are sure to mildew in the open air, can be maintained in perfect health.

The insect enemies, though now so numerous and increasing, can mostly be controlled. The caterpillar or bag worm, (*Clisiocampa Americana*), is to be met by destroying its eggs, which are found in winter near the extremity of the branches, as a brownish shining mass, or by removing the nests while they are small, choosing times when the inhabitants are at home. For this purpose use the hands, covered with a pair of leather mittens, or a pole with a piece of cloth wound on the end and dipped in kerosene, or whale oil soap suds.

The curculio (*Rynchoenus Nenuphar*) attacks not only plums and other smooth skinned stone fruit, which it prefers, but all kinds are liable to its ravages. It is a timid and cun-

ning insect, and most of the remedies look rather to scaring it away, than to its destruction.

By allowing swine or poultry free range under the trees many will be destroyed. Jarring the trees daily, while the fruit is small, and receiving the falling insects on a sheet has proved effectual. The jar must be a smart one to bring them down, to prepare for which, saw off a limb to receive the blow of a mallet on the stump.

Trees planted by paths where there is frequent passing, inclined over water, or with the ground paved under them, often escape. Dusting the trees, when the fruit is small, with lime, ashes, or plaster, has often resulted in saving the crop. The application of some liquid which is offensive to the insect has with me been the most certain preventive which I have tried. For this purpose Mr. Geo. Gager, of Sharon, recommends the following mixture. Take a few pailfulls of the drainings of the dung-heap and place in an old cask and allow it to ferment for a few days. To a barrel add one pint of salt and one pound of sulphur. The mixture should be applied when the flower has just fallen and the plums are the size of peas. A still evening is preferred. Dilute one half or more with water, according to the strength of the liquid manure, and add to each pailful, when taken for use, ashes or slacked lime to make it the consistency of cream. With an old basin or dipper throw it over the tops of the trees, and repeat as often as washed off by rain till the season of attack is passed. Now the curculio will lay its eggs somewhere, and if all the trees are treated alike with some protection, it will hardly prove effectual, but if some of the poorest are left for their use, the choicest ones can be saved. The great number of remedies shows the character of the foe, and that all of them may fail under some circumstances.

The borer (*Saperda bivittata*) is the most formidable enemy of the apple tree and the quince. It attacks also our wild thorns and the shad bush, an allied plant. The eggs of the borer are laid just at the surface of the ground where the bark is tender. The principal crop is in June, though the perfect insect appears occasionally during the whole summer.

The egg soon hatches into a small whitish worm which burrows in the bark, and soon penetrates into the solid wood; in this he makes irregular channels in any direction, casting out his chips like sawdust near the surface or beneath it, till at the end of a year or more he emerges from his hiding place as a blackish striped beetle. He comes out through a round hole nearly as large as a goosequill, about six inches above the ground. When we see this hole we know that this particular borer has done his work. While a tree will often survive the attacks of one or two borers, yet if unmolested they are sure to increase till they kill the tree.

When first hatched, while they are in the outer bark, they may be easily rubbed off, but later they must be punched with a wire, giving when reached, a well recognized "wet sound," or cut out with a knife or narrow gouge. While the worm is in the tree, the wound never heals, but it acts like a fatal abscess. Cut him out however boldly, and it speedily heals over.

Coal ashes placed about the trees are said to be a preventive. I have succeeded best in keeping them out by washing the trunks with a mixture of fresh cow manure, ashes and water, of the thickness of cream, and applied with an old broom. Perform this operation the first of June, and repeat once or twice if soon washed off by rains. But it is quite adhesive, and will not be affected by moderate rains.

The canker worm (*Anisopteryx vernata*) is abundant only on light soils. Some guard placed about the trunk in winter, to prevent the wingless female from ascending to lay her eggs, is the only known remedy. For this end there are various contrivances, such as troughs or bands containing tar or oil. Plowing late in the fall will destroy many in their winter quarters.

The apple worm (*Carpocapsa pomonella*) and the apple maggot (the latter confined to a few varieties and localities) may be kept in check by allowing swine the range of the orchard to consume all the fallen fruit.

The *bark louse* and the *wooly aphid* only attack trees enfeebled by some other cause.

The peach tree borer (*Egeria exitiosa*) is killed by hot water poured about the trunk, or he may be dug out, or a guard of stiff paper may be kept about the collar of the tree.

In some light soils, the rose-bug (*Macrodactylus subspinosus*) abounds, and destroys the blossoms of the vine. The best remedy is to shake them off into water and destroy them.

The *vine fretter* or *thrip* is a very small insect, and its habits are little known, but it appears to be the cause of much of the difficulty attending grape culture. Mr. Barnett of West Haven destroys them in vast numbers by gathering and burning the fallen leaves in autumn when it is cold and wet, as then they have sought shelter there.

The slug worm, or pear tree slug, (*Selandria cerasi*), a kind of sticky snail without a shell, devours the leaves of the pear and cherry tree. The frame-work of the leaf is left brown and dry, as repulsive in appearance as useless in fact. Ashes or slaked lime dusted on the trees will adhere to their sticky skins and destroy them.

If all of these insect plagues were to come upon us at once, we might as well surrender and give up the field; but they are each more or less confined to particular localities, and somewhat periodical in their visitations. Besides the seasons, which sometimes sweep them away entirely, they have their particular enemies to contend with, both among insects and the higher animals, so that we may take courage with a fair prospect of victory.

I have said nothing about varieties. If you are planting large gardens or orchards for supplying the market, select a few vigorous, productive kinds of acknowledged character, and, if possible, known to thrive in your soil and climate. But if for family supply, or even local markets, greater range may be allowed. Some kinds will bear when most others fail. It may pay well to nurse some delicate tree for a family supply of choice fruit, when the expense of a whole orchard would not be allowed. Many kinds, the greatest favorites in the family, are unsuited to carriage to market, from their tender flesh or thin skin. Other sorts may be too small for market that we could illy spare from our own collection.

Some varieties again do fairly over a wide range, while others are the best for a limited district. Some kinds lose their flavor so soon after they are picked from the tree that they will never become favorites for market, that in the family may be most highly prized.

With a somewhat varied selection of each kind of fruit, we are placed in a great degree independent of the seasons, and can have a full supply of fresh fruit for family use the whole year round.

As for the soil, we can drain it, we can enrich it, and we can maintain that fertility which is necessary for the growth and fruitfulness of our trees. By watchfulness and care, we can destroy our insect enemies or guard against their ravages.

The climate seems to be the only influence not so directly within our control. The lavish destruction of our forests, not only in our immediate vicinity, but hundreds of miles away, is working a continual change in the climatic influences to which our fruits are exposed. A destruction is here wrought in one generation which will require many succeeding generations to restore, even after the necessity of such restoration is allowed. Compared with fifty years ago, how few are now the obstructions to the sweep of the Arctic winds in winter, to the chilling, blasting, east winds of spring, or the equally destructive, dry, parching winds of different seasons of the year?

Where the necessity of shelter is admitted, not only for fruits, but for the most successful production of crops, long continued and systematic efforts will be required to accomplish anything of importance.

A volume would be required to give all the facts even now known that have a bearing upon this topic—a subject worthy of uniting in its development the highest knowledge of the philosopher and the skill of the statesman.

The first and obvious means to secure shelter consists in planting all our roadsides with trees, to retain and cultivate copses upon every broken hill and ledge of rocks, and in planting belts of evergreens to protect our gardens, vineyards and orchards. Before this will be done, the knowledge of its

importance must be made so universal, that it shall be to every landholder like instinct to an animal, ever present to control his actions by a force of which he is unconscious, yet whose power he can never escape.

With insects attacking the trunk, the foliage and the fruit; with a climate so severe and variable as at one time, by intense cold, to kill the blossom buds, at another to blast the tender fruit, or, again, to parch the foliage from its extreme aridity. With these difficulties, it is no wonder that some are discouraged and would relinquish the luxury of fruit. But in thus presenting the dark side of the picture, I have done it rather to excite to increased vigilance than to discourage, and the testimony of the fruit cultivators of Connecticut, which I have here been enabled to present, is that it is more the want of knowledge of the adaptation of varieties to their special location, and of the best methods of culture, and of the destruction of insects, than any other reason, which has prevented their entire success. They claim to have been reasonably successful, and I commend their spirit of hopefulness and constant activity to the good citizens of Connecticut, being assured that there is no occupation that will make larger returns, both in satisfaction and profit to him who owns or can hire a rood of land, than fruit culture.

REPORTS OF THE DELEGATES TO THE COUNTY EXHIBITIONS.

The following circular was sent to each of the delegates appointed by the Board to visit the different agricultural exhibitions in the State :

SIR,—As the Delegate appointed by the State Board of Agriculture to visit the fairs in —— county, you are particularly requested to give your attention to the following points :

The peculiarities of the agriculture of the county, as manifested by the exhibition.

What branches of husbandry are esteemed most profitable and most generally pursued ?

Note the condition of stock and crops this year.

Note the interest felt in the fair by the numbers and character of those in attendance.

Learn by observation and enquiry the past, present and prospective condition of agriculture in the county.

Designate the best features of the exhibition and the worst, if any, with suggestions for improvement.

This is not designed as a complete schedule to be exactly followed, but to give some suggestive hints upon topics for your report.

Please make your report as early as convenient to the Secretary of the Board.

T. S. GOLD, *Secretary*.

NEW LONDON COUNTY.

The New London County Agricultural Society held their fair at Norwich, October 2, 3, 4, 5.

They have covered stalls for the stock, and a commodious building for the exhibition of the products of the farm and garden and all manufactured articles, so that the fair can be continued for several days, thus insuring some good weather, and giving all an opportunity to visit the exhibition.

As the Delegate appointed by the State Board of Agriculture, I attended this exhibition, and carefully compared it with others which I have visited in this State and elsewhere.

There was a good display of animals, embracing all the leading classes of blood stock. Alderneys, Ayrshires and Devons seemed to be the favorite breeds, of which latter class James A. Bill, Esq., of Lyme, exhibited about seventy head, pure blood and grades. His team of working oxen and steers showed the excellence of this breed for this purpose. It is rare to find among other breeds such docility, mildness with spirit, uniformity in style and action, to say nothing of color, which, I admit, is of comparatively little importance. The Devon steers at the New London fair called into exercise the careful study of the judges, for they were numerous and

very beautiful. The numbers on exhibition would indicate that the raising of stock is an important feature of farming in this county, and their appearance would show skill and success in this department.

In the horticultural department the display was creditable, yet, succeeding as it did the show of the Horticultural Society in Norwich, on Tuesday evening, the contrast was unfavorable to the Agricultural Society. The farmers should be the fruit-growers, and their fairs should present the best fruits and flowers. The crop of fruit, especially pears, was abundant in the county, and its success should encourage all to engage more extensively in this branch of husbandry.

The condition of the stock on the fair grounds was good, not excessively fat, but thriving and healthy. The reports from the different parts of the county are favorable as to the grass and other crops.

During the first two days of the fair the weather was unfavorable, a drizzling rain or mist driving every one to shelter, while no hope of its clearing away could be discerned in the dull sky; yet, on Thursday and Friday, the sun shone as brightly and the air was as clear as any fair-goers could desire. The ample receipts of these two days at the gates established the success, financially, of the exhibition, while its actual success had been previously secured through the spirit of the farmers of the county. The ample accommodations for the exhibition remove many of the discomforts arising from bad weather, and the example of the New London County Society, in this respect, is commended to the other societies in the State.

I shall not be expected to specify individual exhibitors. A commendable spirit of rivalry seemed to exist, and it appeared to me that the farmers were both disposed to maintain and profit by their society.

The state of agriculture in the county is improving. Fields are profitably cleared and drained, and the tide is now turned towards a better husbandry, the inevitable result of good prices and good markets. There is much fertile soil in the

county, and it makes a good return for careful culture, and the farmers of New London county do not altogether neglect their advantages.

E. H. HYDE,
Delegate to New London County.

FAIRFIELD COUNTY.

As the Delegate from the State Board of Agriculture to the Fairs of Fairfield County, I beg leave to make the following report:

On the 19th of September, attended a Town Fair at Ridgefield, and found a very good exhibition of Pears and Apples, and the specimens of the different varieties were very good.

Vegetables were not very numerous, but some very good Potatoes of a number of kinds, were exhibited, and of Pumpkins, some very good sized ones.

Of Grain, there was very fine Wheat and Rye, and in the miscellaneous department there was a fine display.

The exhibition of Cattle, Sheep and Swine, took place the day before I was at the Fair, but was said to be (although less in numbers than had been shown in years past,) better in quality, and it was thought by several with whom I talked, that the Fairs were a benefit to the town, and contributed to the advancement of its agriculture.

From the 25th to the 28th, visited the Fairfield County Fair, held at Norwalk, and found the large tent of the Society well filled with agricultural, horticultural, mechanical and miscellaneous productions, but owing to the rain on Wednesday, the 26th, I did not visit the grounds, and missed the exhibition of Cattle, Sheep, and Swine, which were shown on that day; but as reported by other visitors, and from a report gathered from a number of persons, the exhibition was much finer than in years past, particularly in blood stock; Sheep were in more numbers, while Swine were in less than in years past.

The exhibition of Horses was very fine, and said to be better than was ever shown at a Fair of the county before.

The exhibition of Fruits was very large, and the collections were very fine, and there were very fine specimens of the various kinds.

The exhibition of Grains and Seeds was very good; of some there were very fine specimens.

The exhibition of all kinds of vegetables was large, and their quality very fine; and there was also a large display of beautiful flowers.

The display of Grapes was excellent; that of household and fancy articles was very large and fine; and of mechanics I would say the same.

The Fair was a very successful one for the Society, and as compared with those of past years an advancement was manifest in the improved display of fruits and vegetables; also in stock and horses.

As regards the points suggested by the Secretary of the Board of Agriculture, for particular attention, I would make the following report:

1st. The raising of fruits and vegetables appears to be the most extensive branch of agriculture pursued in the county, as shown by the exhibitors at the Fair, and together with raising grass, not for feed, but for market, appears to be most generally pursued, and I should think were considered the most profitable.

2d. The crops were not up to the average this year; grapes about two-thirds of a crop; grains of all kinds, including corn, are said to be about two-thirds of the average crop; potatoes about two-thirds of an average crop; and owing to the shortness of pastures, stock was looking thin, and had not done well through the summer.

3d. The interest taken in the Fair by the members of the Society was manifest in the extensive display of the various agricultural, horticultural and mechanical departments, and also in the large display of fancy and miscellaneous articles, which was reported to be much finer than in past years, and it was said that they were advancing in all departments, from year to year, and taking the time for a number of years back,

a great advancement could be seen in the condition of the Society, and in the agriculture of the county.

4th. The best features of the Fair were the extensive tables of fruits and vegetables displayed, and in their superior size and beauty ; and the whole exhibition in the tent, although disarranged by the violent storm of Wednesday, was very highly creditable to the Society and officers ; to the latter, thanks are due for their generous hospitality and kindness.

HENRY L. STEWART,

Delegate to Fairfield County.

WINDHAM COUNTY.

As the Delegate appointed by the State Board of Agriculture to visit the Fairs in Windham county, I visited the County Fair, but was not able to visit the Fair at Woodstock. So far as I could gather information, I did, and make the following reply to the questions in the Circular :

1st. The greatest peculiarity of the Fair was the large number of fine, well-matched, working oxen, some twenty-five pairs from one town.

2d. The raising of hay and grain, butter and cheese, beef and pork, were esteemed the most profitable branches of husbandry. The raising of fruit is extensively practiced. One large hog was on exhibition, less than two years old, weighing 1,155 pounds, Chester county stock.

3d. The crops are good, excepting oats and apples. The condition of the live stock is fine.

4th. The members of the Society manifest a deep interest in the Fair, and although all classes of people were represented, it was attended generally by the most respectable inhabitants of the county, both male and female.

5th. For some time past considerable attention has been paid to improvements in agriculture, by underdraining and reclaiming rocky land, but yet much remains to be done.

6th. The best feature of the Fair was working cattle ; at least one hundred yoke were on the ground. There was a good show of horses, sheep, and swine. The show inside the

building was creditable, especially butter and cheese, which were of superior quality. Their premium list, I think, might be improved upon, so as to induce a larger show of stock, of all kinds.

The weather was bad for a large gathering, as it threatened rain, and did rain some during the Fair, but upon the whole, I believe the Society was prosperous in a pecuniary point of view.

JOHN BREWSTER,
Delegate to Windham County.

LITCHFIELD COUNTY.

Having been appointed by the Board of Agriculture, at their meeting at New Haven, August 1st, 1866, to visit the Agricultural Fairs in Litchfield county, and make report to their Secretary, we would say that we visited three of the Fairs in the county, viz: Union, at Falls Village, Litchfield county, at Litchfield, and Greenwoods, at Winsted. Two others were held in the county, which we were unable to attend.

Union, at Falls Village, was held September 10th and 11th. We were on the Fair ground only during the afternoon of the 10th, (and a rainy afternoon at that;) but we were kindly received, and were much interested in the Fair. A half-hour spent in viewing the stock on exhibition, satisfied us that neat stock is a specialty in this section of the State.

The show of vegetables was good, and various manufactured articles were deserving of special notice, coming both from the cabinet shop, and the spinning wheel, and hand loom.

As the storm prevented our taking notes at the time, we speak from recollection, but if we mistake not, cloths, both woolen and linen, spun and wove by exhibitors, were shown, the wool and flax being raised and the whole manufacture being done by the exhibitors, in their own dwellings. We were interested to see this. It reminded us of our boyhood, when (more than half a century ago,) our child-duties were to wind quills and take care of the baby during the weaving season, being the oldest child in the family, and all the cloth-

ing of the family was manufactured by hand in the family, from the raw material produced on the farm.

The show of cattle as we have intimated before, was very good; Durham grade, of good size, preponderating. At three o'clock P. M. it was announced that the trial of strength of working oxen would take place. As the rain was falling, and the people were already wet, and mostly without overcoats, we supposed this part of the exhibition would be a failure, but not so. We were comfortably seated in a covered carriage, with a friend, and here for nearly two hours, in an unremitting rain, the farmers of the Union Agricultural Society tested the strength of their cattle, and though most of them must have been wet to the skin, not one, that we noticed, left the ground. A good test, as we thought at the time, of the interest they felt in their Society, and a sure presage of deserved success.

We were pleased to learn a week afterwards, at Litchfield, that the next day (a pleasant one,) gave a full attendance, with gross receipts of \$1,371.44, as the avails of their Fair. They well deserved it.

September 19th and 20th we attended the Litchfield County Agricultural Show and Fair at Litchfield. We found good arrangements—a fair ground located a little south of the village, in the midst of fertile lands and beautiful agricultural scenery—a very efficient board of officers, and seemingly every desirable arrangement to make the fair a complete success. But alas for us poor mortals! we cannot control the elements. Both days were foggy and damp, with considerable rain, rendering the track unfit for the show of horses, and this without doubt greatly hindered and prevented the attendance which fair days would have secured. As it was, there was a much fuller attendance than we expected to see with the forbidding aspect of the weather.

At 11 o'clock on the first day the town teams began to enter upon the grounds, and after one town team of between thirty and forty yokes of splendid oxen had entered, we began to wonder if there were many more left out, when in comes another team of equal and even greater numbers, and there

they stood, the splendid Devons and Durhams, pure blood and grade, the representative teams of Litchfield and Torrington.

The last yoke of oxen in the Litchfield train were a noble yoke of six years old Devon grades on the neap of a cart. From their horns and each end of the yoke fluttered various colored ribbons and miniature flags. The cart was an agricultural exhibition of itself. A raised platform on the body projecting over the wheels, was filled, it seemed to us, with every agricultural production. Sorghum, sweet corn, broom corn, stood up proudly from eight to twelve feet in height, by the side of the modest cucumber, tomato, &c., and on each of the four corners of the platform was the full-starred flag of our country. On the front, on each side, and on the rear of the platform were entablatures on which were written agricultural mottos, which were so appropriate and expressive, that we give them here.

On the front—"Success to Agriculture."

Right Side—"The Soil, the Mine, and the Sea, the only sources of wealth."

Left Side—"Industry and Education, the sources of happiness."

Rear—"Harvest Home."

The show of neat stock was large and the quality good; in color, the bright red of the Devon predominating. A test of the *training* of oxen in drawing a loaded stone-boat was had, which attracted much interest. The second day was devoted to horses, but the drizzling rain forbade the use of the track, and they were examined by the judges, but could make no display. The horticultural department was good, and the display of flowers was splendid. This society had a very large tent in which they exhibited, and it subserved a good purpose at this time, for it was filled with listeners to an address by the Rev. C. T. Woodruff, of Norwalk, after which all present who had music in them, united in singing the Christian Doxology,

"Praise God from whom all blessings flow," &c.

October 3d and 4th we attended the Green Woods Cattle Show and Fair held at Winsted. The first day was devoted

to the show of stock, and we were surprised to see them in so large numbers, as the weather was rather unfavorable in the morning, but finally proved a comfortable day. There were nearly one hundred yokes of nice oxen on the ground, Durham grade preponderating. Barkhamsted wheeled into line with a town team which was a prominent feature in the show, and was a team of which any town in the State might well feel proud. There were also on exhibition about one hundred cows, young cattle and calves. One exhibitor had twenty-two cows on the ground, mostly native; we should judge all in milk, and certainly a splendid herd. Pure blood Devons and Alderneys were also on exhibition, and were apparently well worthy of the special attention which they attracted.

The attendance on the first day was not large, owing doubtless to the forbidding appearance of the weather in the morning.

The second day was devoted to the address by W. K. Peck, Esq., and the reports of the committees; also the exhibition of horses. The horses were entered not for speed alone, but for their general good qualities. There were splendid specimens of horses and colts on exhibition, said by members present, to be better than ever before exhibited on their grounds.

This society has ample grounds enclosed, and good buildings for the show of vegetables, fruits, fancy work and flowers, which were well filled by the exhibitors, and what is more there seemed to be a class of farmers who take an interest in the society, and seemed determined that it should be sustained, although they felt somewhat grieved that the County Society should take all the money appropriated by the State, and the smaller local societies in the county should be left to shift for themselves.

In regard to the general agricultural interest in Litchfield County we had little opportunity to judge, further than our observation at their fairs. From this we should infer that the grazing, stock raising, and dairy interest were the leading ones of the county, and also the interest best adapted to the

mountainous and broken surface of the soil. The county, we should judge, would be well adapted to sheep raising, but so far as the fairs gave evidence, this did not seem to be a leading interest.

On the whole, we were fully satisfied that progress is being made in practical agriculture in the County; that farmers are appreciating their position, and are beginning to realize that sure dividends will result from investments of efficient fertilizers and thorough cultivation made in the banks of mother earth.

JOHN S. YEOMANS,
Delegate to Litchfield County.

MIDDLESEX COUNTY.

I feel that I have too long neglected my duty as Delegate from the Board to the County Fair, in Middlesex county, but with nothing but nearly barren shelves at the Hall, and an almost vacant lot for stock, what can I do in the way of report? I will say in brief that as to the first point referred to in your schedule, viz: "The Peculiarities of the Agriculture of the County," &c., there were not manifestations enough in any one department to enable me to form any idea of what was deemed most profitable, or most generally pursued.

2d. As to the Condition of the Stock and Crops. There was a very good show (though small,) of apples, indicating adaptation of soil and climate to that fruit. There were exhibited thirty bushels of apples, fourteen bushels of potatoes, eighteen large cabbage heads, and some fine pumpkins, all showing good soil, for general farm products. The amount of stock exhibited was too small, I am sure, to indicate what may be supposed to be the condition of the farmers supply of animals in that county, either in quality or quantity. If the exhibition did give a true idea of the stock of the county, I fear the inmates of the hospital so recently located there, will be more likely to vegetate, than to grow fat on roast beef. There were on exhibition five pairs of fat cattle, very fair quality; four (supposed) fat cows; four bulls, one Durham

grade, seventeen months, large; one Alderney; one dark red; one Ayrshire, all very good; six heifers; nine milch cows; three pairs of steers; seventeen pairs of working oxen; twenty pairs of working oxen in train, from Cromwell, with single big ox for a leader. The main noticeable feature of this part of the exhibition was, that the cattle were good workers, rather than fine, or fancy stock; and it would seem that with such workers there might have been a much greater show of farm products, but perhaps there is greater attention to hauling stones than to planting potatoes.

The horse department was scarcely worthy of notice; there were six or eight colts of promise, and a few horses for all work; on the whole this part of the exhibition was very poor, when we remember the past history of Middletown, in regard to ownership of good horses. One horse, (Snowbird,) on exhibition, deserves notice, from the fact that he was so old and stiff as to have found New Haven untenable many years since. I noticed the knees were no more limber, but maintained about the same angles as when I last saw him in this city; of that date I do not know any exact historical record.

3d. As to the interest in the Fair, I should say the attendance was sufficiently meagre to indicate almost no interest, on this particular occasion. I believe there is a much better condition of agriculture in Middlesex county than was shown by this Fair. I learned that but little time was given to prepare for the Fair. Owing, as I presumed from observation, to some disaffections and some disorganizing elements, it was not decided until a late hour to hold any Fair; therefore I conclude from all that I could learn, that the county is fully capable of showing much greater progress in general agriculture, than was manifested by the exhibition of 1866.

I have thus hastily hinted at a few of the leading points of your instructions to delegates, hoping you will excuse the delay in undertaking so unpleasant a task as such an ungracious report would indicate.

C. B. WHITTLESEY,

Delegate to Middlesex County.

TOLLAND COUNTY.

This county is characterized by poor soil, a rough surface, and the absence of any agricultural specialty. It is the poorest county in the State. Not being adapted to grazing, there are few large farmers, almost no dairies, and scarcely any improved stock is raised; and but for the numerous and flourishing manufactories, the county would show a decline, both in population and in agricultural wealth.

The manufactories are the saving of the county. The farmers in all sections have good markets at their doors. Every thing they raise sells for cash at city prices. Twenty years since, a large proportion of the farmers were in debt; now, while living in greater comfort than formerly, most of them are steadily laying up money.

The western part of the county is dry and sometimes sandy, but comprises the best soil. Rye succeeds well here, and is a favorite crop, and in Somers, Ellington, and Vernon, considerable tobacco is raised.

The eastern hills are stony and rugged, but have a moister soil, and are better adapted to oats, but though some few large crops are raised, the average yield appears to be only about thirty bushels per acre; a small return. A mixed husbandry prevails throughout the county; potatoes, beans, onions, vegetables of various kinds, milk, butter, pork, poultry, buckwheat, and corn, are all raised to a limited extent, and the farmers find a ready market for their surplus in the nearest village. Wood holds a prominent place in their sales, and apples are raised in considerable quantity, and pay well.

This has been an unfavorable season in some respects. Corn made a large growth, and promised well, but is said to have filled badly, and to be rather a light crop. Much tobacco was injured by the early frost, and both in quantity and quality it is below the average. Rye is light. Oats are good. Of apples, there are scarcely any, save in a few favored localities. Potatoes gave unusual promise, but the dry weather affected them unfavorably, and the yield is not much above the average.

In reviewing the agriculture of Tolland county, one can not fail to be impressed by its marked characteristics, and the difference between this and the other counties of the State. The absence of dairies, of large farms, with their herds of cattle, and flocks of sheep, the rugged hills, the comparatively sterile soil, and the want of improved stock, strike a stranger unfavorably, and the first impression is that this is a hard place for a farmer. But there are compensating advantages; the home markets are good.

The great secret of success in farming, without which, hard labor, self-denying resolution, and persistent saving meet with but poor return, is to learn what crops and course of treatment are best adapted to your own soil and circumstances, and this once ascertained, to bend your whole energies to prosecuting it to the best advantage. In devoting their attention to raising for their home markets, the farmers of Tolland county have followed this natural law, and their increasing prosperity is the result. Small farms lead to good culture; and as a rule one might say with truth that the smaller the farm the better the cultivation. Doubtless in many instances men are eminently successful, especially in growing for home markets, principally on account of the limited extent of their land, and the "garden culture" it receives in consequence. In pursuing this branch of farming, high cultivation is a requisite of success, and the abundant use of manure a necessity. On most poor soils, large crops can be raised by its use, but the hungry soil needs constant feeding.

To increase the quantity and quality of manure should then be the first care of the farmer. Few give due attention to this. Very many can easily double the amount they now make, and better the quality in the process. Care should be taken to save all that is possible. Housing or yarding stock at night when practicable, saving the drainage of the yard, the night-soil, the discharge of sinks, the hen-droppings, the waste of mills, and particularly the liquid manure, (often wasted, but estimated to be of equal value with the solid droppings,) the free use of absorbents, of which muck is the most valuable, these combined with care in manipulating and storing the

manure, will do more for the farmer than any equal expenditure of time in other ways. In but few instances is it profitable to purchase artificial fertilizers; many a man buys them, when a little care in saving and composting the contents of the privy, the sink, the old bones, the hen manure, or the liquid now wasted in his barn, would give him ten times as much, and often of better quality. Every thing of value as an absorbent should be carefully saved, and muck, will pay for much trouble and expense.

Next in importance to the making of manure is care not to cultivate more ground than you can bring to the highest state of efficiency. Most of our farmers err in spreading their manure over too large a surface. Labor is more than doubled in raising on two acres what you could take from one; the crop is inferior in quality, and the land left in poorer condition.

The value of improved stock is not appreciated. Many a man keeps cows yielding only eight or ten quarts per day in their flush, when he might have those that would average that quantity for every day in the year. Native cows may sometimes be found equal to the best, but there is little probability of the transmission of their good qualities to their calves, while this is one of the most certain traits of thorough bred stock. In ease of keeping, in readiness to fatten, in all good qualities improved stock, whether of cattle, sheep or swine, far exceeds the common kinds; but each farmer must use his own judgment in selecting such as are best adapted to his purpose, and the peculiarities of his location.

The Tolland County Fair, held at Rockville, October 10th and 11th, was a county fair only in name. Any town in the county could have made a better display. The location is excellent, the grounds spacious, the buildings sufficient, and the management in good and experienced hands, but little interest was manifested by the farmers, and the contributions were meagre. There were but few entries of Devons, and only one herd of Ayrshires, but the animals were of superior quality, and would have attracted attention at any fair. No Short-horns were present, and it is said there are none in the county. Of grade and native cows there were five or six, two of them

of marked excellence; and two entries each of heifers and calves. Working cattle were presented in considerable numbers, and among them some fine pairs. There were about thirty horses entered for the second day, and the attendance on this day was much greater than on the first.

The display of pears and grapes was creditable, but owing to the unfruitful season, there were but few apples. Scarcely any agricultural implements were shown. Of domestic goods, but few, though the village of Rockville alone could easily have filled double the space allotted to this class.

Of produce there were one hundred and fifty entries, and the display was good. Potatoes, especially, were exhibited in profusion, of numerous kinds, and unusually fine specimens.

It is much to be regretted that no more interest is felt in this Fair. As an exhibition of the various products of the county, it could be made of great benefit to the farmers. To see what others are doing, look at improved stock, and discuss their merits, learn what crops are raised, and prices obtained, find where to go for stock or seed, and to obtain purchasers for their own products, are a few of the advantages to be gained.

The attendance on the first, or agricultural day of the Fair, was small. It was natural; there was little to see. There were a few fine thoroughbred animals that were well worth careful notice and study, but there was nothing but their fine appearance to call the attention of the inexperienced to them, and many farmers did not even know what kind of stock they were. The Society owes its continued existence to a crowd collected on the second day to see horses on the track. This is not peculiar to this Society; it is common to almost all; but is it necessary? Can not there be sufficient interest excited in this important subject, to make our annual Fairs interesting and instructive? The agricultural papers are now read by hundreds, who ten years since condemned "book-farming" utterly. No man will try to improve until he believes in the possibility of so doing. The farmer is especially conservative and cautious, slow to believe, and slow to move; he is accustomed to doubting what he reads; but bring facts

to his own positive knowledge, and he will accept them. This is best done at such Fairs. Let the managers ascertain what is needed in their section, and see it furnished for inspection. Do not wait for the action of manufacturers and dealers; see to it that such machines as are needed are on the ground. Any maker will gladly exhibit what is wished. See that successful breeders are present with stock and statements of facts, ready to give their experience, and encourage others to follow their example. Obtain samples of such seeds as are best adapted to the section, with instruction for their culture. Give to members the privilege of purchasing such at cost. Have successful cultivators of various products, give statement of ways and means used, to be afterwards printed. Invite discussion as to breeds of cattle best adapted to the county. Encourage associations for purchasing bulls. Offer premiums for experiments in raising certain crops. Print your proceedings in cheap form for the use of members. Then advertise thoroughly what you are doing, and there will be no complaints of thin attendance at your annual gathering.

H. S. COLLINS,

Delegate to Tolland County.

RETURNS OF AGRICULTURAL SOCIETIES FOR 1866.

FINANCES.

SOCIETIES.	Amount received from the State.	Income of the permanent fund.	Members and entrance fees.	All other sources.	Receipts for the year.	Premiums offered.	Premiums and gratuities paid.	Current expenses, not including premiums and gratuities, for the year.	Disbursements for the year.	Indebtedness.	Value of real estate.	Value of personal property.	Permanent fund.
Hartford,	200.00		1,467.00	125.00	1,792.00	2,000.00	656.00	636.00	1,292.00	1,500.00		3,000.00	2,368.16
New London,	200.00		2,406.56	839.92	3,446.48	2,000.00	1,079.30	1,593.85	2,673.15				
Fairfield,	200.00	191.70	2,601.22	969.75	3,962.67	2,400.00	1,243.00	1,878.50	3,121.50				
Windham,	200.00		983.16	86.92	1,270.08	1,200.75	927.50	379.09	1,306.59	1,000.00	6,000.00	500.00	
Litchfield,	200.00		590.30	614.47	1,404.77	998.00	674.17	781.57	1,455.74		2,000.00		
Middlesex,	200.00		224.65	45.75	470.40	400.00	255.50	162.86	418.36				
Tolland,	200.00		318.40	573.76	1,092.16	493.00	367.25	446.01	815.00			675.00	
Union, (Falls Village,)													
Housatonic, (New Milford,)			1,322.37		1,371.00	894.75	747.75	635.54	1,383.29				
Fair & Meehan, (Guilford,)			103.00	83.05	1,322.37	750.00	650.00	540.65	1,190.65			300.00	
					186.05		141.61	43.03	184.64				

PERMANENT FUND—HOW INVESTED.

Fairfield County. Capital Stock deposited in the Norwalk Savings Society and note of an individual.
 Litchfield County. Property consists of land, buildings and tools.

N. B. New Haven County Agricultural Society held no Fair in 1866.

RETURNS OF AGRICULTURAL SOCIETIES FOR 1866.

FARM PRODUCTS.

SOCIETIES.	Total amount offered for grain and root crops.	Total amount awarded for grain and root crops.	Total amount paid for grain and root crops.	Sorghum.	Fruits.	Flowers.	Butter.	Cheese.	Honey and Maple Sugar.	Bread.	Total amount paid out under the head of Farm Products.	Amount awarded for agricultural imple-ments.	For mechanical inven-tions, domestic manu-factures, &c.,	No. of persons who re-ceived premiums and gratuities.	No. of Medals.	No. of Diplomas.
Hartford,	\$ -	50.00	45.00	1.00	85.00	21.00	7.00			8.00	221.00	10.00	60.00		3	42
New London,	-	31.00			40.00	11.00	18.00	15.00	3.00	9.00	296.00	15.50	75.00	203	9	
Fairfield,	-	72.50	72.50		126.00	72.00	10.00	6.00	3.00	7.00	133.25	20.50	133.25	170		
Windham,	-	21.00			44.50	19.75	15.00	15.00	9.00	9.00	67.84	8.00	103.50	187		
Litchfield,	-	9.75	8.50		25.25	24.21	3.50	9.00					21.85	60		
Middlesex,	-	11.25			14.15		5.00	4.00	3.00	2.75						
Tolland,	-	38.50	25.75	2.00	38.00		3.75	5.00	1.50	5.00		6.00				
Union, (Falls Village,)	-	117.00	111.50	3.00	30.50	15.50	6.00	12.00	1.00	1.50	155.00			217		
Housatonic, (New Milford,)	34.25	18.25	18.25	.50	7.25	25.00	4.00	5.00	.50	4.25	72.25	12.00	28.50	202		
Far. & Mechar., (Guilford,)				.25	15.80	2.90	1.20	1.25	.50	.40	33.40	1.00	6.85	154		

ANALYSIS OF PREMIUMS AND GRATUITIES AWARDED.

FOR FARM STOCK.

SOCIETIES.	For Bulls.	For Milch Cows.	For Heifers.	For Calves.	For Working Oxen.	For Steers.	For Fat Cattle.	For Horses.	For Sheep.	For Swine.	For Poultry.	All other Stock.	Total amount offered for Live Stock.	Total amount awarded for Live Stock.	Total amount paid for Live Stock.
Hartford,	24.00	52.00	17.00	15.00	53.00	9.00	15.00	114.00	11.00	20.00	16.00		575.00	408.00	347.00
New London,	53.00	107.00	88.00	15.00	79.00	31.00	15.00	311.00	82.00	25.00	27.00	10.00	843.00	843.00	
Fairfield,	35.00	29.00	34.00	8.00	118.00	24.00	25.00	326.00	81.00	11.00	72.00		1,439.00	763.00	763.00
Windham,	56.00	21.00	14.00	7.00	104.00	17.00	10.00	327.00	50.00	23.00	7.00		813.50	636.00	
Litchfield,	48.00	27.00	42.00	9.00	144.00	84.50	16.00	145.00	41.00	3.00	7.00	*50.00	775.00	618.50	526.50
Middlesex,	14.00	18.00		10.00	69.00		14.00	63.00	8.50	7.00			193.50		
Tolland,	14.00	17.00	9.00		24.00	14.00		74.00	1.00	6.00	8.00		197.00	209.50	209.50
Union, (Falls Village,) Housatonic, (New Milford,)	14.00	16.00			75.00		8.00	332.00	21.00	10.00			781.00	545.00	545.00
Far. & Meehan, (Guilford,)	14.00	24.00	9.50	1.00	97.00	14.00	10.00	116.00	45.00	6.00	.50		484.00	337.00	331.00
	2.00	4.25	.50	.30	62.00	10.50		15.50	1.50		.75			97.50	

* Stocks of Cattle.

ANALYSIS OF PREMIUMS AND GRATUITIES.—CONTINUED.

FOR FARM PRODUCTS.

SOCIETIES.	Indian Corn.	Wheat.	Rye.	Oats.	Beans.	Grass Seeds.	Potatoes.	Carrots.	Beets.	Parsnips.	English Turnips.	Ruta Bagas.	Onions.	Other Root Crops and Vegetables.
Hartford,	3.00	3.00		2.00	2.50		11.00	1.50	1.00	1.00	1.00		2.00	
New London,					1.00	8.00	2.50	1.50	1.50	1.50			3.50	44.00
Fairfield,	1.50	3.00	2.50	1.50			4.50	.50	.50				1.50	11.00
Windham,	2.00						3.50		1.00		1.50		1.50	2.25
Litchfield,														
Middlesex,			1.50		2.00		7.00	1.00	1.00	.50	.50		2.00	
Tolland,	2.00	1.50											.50	
Union, (Falls Village,)	15.00	10.00	5.00	5.00		4.00	5.50	3.00	.50		6.00		.50	
Housatonic, (New Milford,)	1.00	2.00	1.50	1.50	1.00	3.50	3.50	.75	.90				.50	2.50
Far. & Mechan., (Guilford,)	2.25	.50	.60	.45			4.30	.25			.25	.45	1.35	

NUMBER OF ANIMALS EXHIBITED.

SOCIETIES.	Bulls.	Milch Cows.	Heifers.	Calves.	Working Oxen.	Steers.	Fat Cattle.	Horses.	Sheep.	Swine.	Poultry.	All other Stock.
Hartford,	8	45	30	11	102	8	2	134	30	19	75	3
New London,	20	64	51	10	81	64	15	92	127	16	30	
Fairfield,	7	7	11	5	50	10	8	125	50	12	105	
Windham,	18	11	13	5	142	14	6	84	173	24		
Litchfield,	18	16	39	21	308	244	7	87	37	23	52	88*
Middlesex,	-	-	-	-	-	-	-	-	-	-	-	-
Tolland,	4	5	5	6	12†	12	-	37	2	10	12	-
Union, (Falls Village,)	-	-	-	-	-	-	-	-	-	-	-	-
Housatonic, (New Milford,)	7	12	20	5	70	14	5	80	33	17	2	-
Far. & Mechan., (Guilford,)	2	1	1	4	34	16	-	13	15	-	18	-

* Stocks of Cattle.

† A string of working oxen are not included.

Names of the Towns in which the persons resided who received the Premiums and Gratuities as awarded by the Societies, and the several amounts.

LITCHFIELD COUNTY.

Salisbury,	\$5.00	Plymouth,	\$38.00
Canaan,	6.00	Litchfield,	211.42
Norfolk,	11.00	Morris,	53.50
Cornwall,	42.25	Bethlehem,	26.00
Goshen,	23.75	Watertown,	42.75
Torrington,	57.50	Washington,	146.00
Harwinton,	4.00	New Milford,	7.00

WINDHAM COUNTY.

Brooklyn,	Plainfield,
Canterbury,	Providence, R. I.,
Chaplin,	Scotland,
Hampton,	Sterling,
Killingly,	Thompson,
Monson, Mass.,	Woodstock,
Norwich,	Windham,
Pomfret,	

HOUSATONIC, (NEW MILFORD).

New Milford,	Washington,
Sherman,	Woodbury,
Brookfield,	Kent,
Bridgewater,	Warren,
Roxbury,	New Fairfield,

Names of the Officers of Agricultural Societies in Connecticut, for 1866.

HARTFORD COUNTY.

D. H. Willard, Newington, President.
William H. Gross, Hartford, Treasurer.
F. A. Brown, Hartford, Secretary.

NEW HAVEN COUNTY.

D. C. Whittlesey, New Haven, President.

NEW LONDON COUNTY.

John Brewster, Ledyard, President.
John C. Kellogg, Norwich, Secretary.

FAIRFIELD COUNTY.

Jonathan Camp, Norwalk, President.
Joseph W. Hubbell, Norwalk, Treasurer.
Charles E. Plumb, Trumbull, Secretary.

WINDHAM COUNTY.

Charles Osgood, Abington, President.
Edwin Newbury, Brooklyn, Secretary.

LITCHFIELD COUNTY.

J. Deming Perkins, Litchfield, President.
William H. Braman, Litchfield, Treasurer.
John D. Champlin, Jr., Litchfield, Secretary.

MIDDLESEX COUNTY.

A. G. Pease, Middletown, President.
D. Barnes, Middletown, Treasurer.

TOLLAND COUNTY.

E. H. Hyde, Stafford, President.
Joseph Bishop, Tolland, Treasurer.
George H. Kingsbury, Rockville, Secretary.

UNION, (FALLS VILLAGE).

E. W. Spurr, Falls Village, President.
C. B. Maltbie, Falls Village, Secretary.

HOUSATONIC, (NEW MILFORD).

George S. Cogswell, President.
R. E. Canfield, Secretary.

FARMERS AND MECHANICS, (GUILFORD)

William W. Fowler, Guilford, President.
Henry B. Starr, Secretary.

REMARKS BY THE SECRETARY.

The imperfection of these returns from the different Societies, is very apparent from these tables. Very few have even attempted to fill out the blanks in all parts. Surely the State is entitled to receive this small return in information for the bounty it bestows. These Societies should be managed so that all their transactions will bear publishing, and if any of them were withheld because they would not bear the light, it becomes each one so to manage its affairs in the future, that there shall be no holding back for this reason. But at present we rather attribute this to carelessness than to any design. But even this excuse ought not to be tolerated another year, and a careful examination of the blanks should be made in season to secure a proper classification of the facts. The blanks will also suggest some subjects as worthy of premiums, that have not yet been on the lists, and for this purpose they are commended to the notice of the officers of the various Agricultural Societies in the State.

AGRICULTURAL EDUCATION.

BY FRANCIS GILLETTE.

It would add millions to the national revenue in a few years, if it were generally understood, that the business of agriculture, when undertaken with the advantages of capital, suitable education, and means of information, is the safest, and on the whole the most surely prosperous business that is carried on in this country; although as things now are, no men work as hard for so miserable pay as the great mass of our agricultural population. It is from a general want of wisdom, information and enterprise, and a general prevalence of a stupid self-conceit and short-sighted economy among our farmers, that the average crops and the profits of agriculture are so small.

The Nation, February 21st, 1867, page 147.

There is a measure of justice in the foregoing criticism. The mass of farmers are wanting in intelligence and enterprise. They plod on, year after year, in about the same way that their fathers trod, with little thought of improvement. They work hard, it may be, but the pay is small, hardly enough to defray the merest necessities of living. The wonder is that they do manage to fight the wolf from the door. Any other business conducted with so little intelligence, system and enterprise, would go to wreck, and submerge all who should embark in it. One result of the thriftlessness of our agriculture is seen in the steady decrease of our agricultural population. The boys quit the old farms in disgust, and flock to the cities to find their fortunes, at the terrible hazard of losing themselves. This is a deplorable evil of the times, pernicious to all the highest interests of society. If, as Montesquieu says, cities are sores upon the body politic, their multiplication and growth are to be deprecated, especially so if at the expense of the rural population. Already some of these sores have become deadly cancers upon the vitals of the country.

The appropriate remedy for the evil must be sought in the better education and improvement of the agricultural class. Educate the farmer and prepare him for his sphere. Give him

a thorough professional training, not inferior to those deemed indispensable to most other pursuits. Discard the notion as a relic of the dark ages, that knowledge is unsuited to the farmer, and valueless to his pursuit. True enough, ignorance and success do sometimes meet and shake hands in the field, as at the bar, in the counting-room, the pulpit, and the sick-chamber—quackery does sometimes hit the mark, because the mark chances to be in the line of some of her random shots; but science is no less serviceable to agriculture than to any other pursuit, and it will generally be found that men who farm by inspiration are expiring farmers. The truth is, science is the guiding star of successful agriculture—science applied by skillful practice.

What within the last half-century has doubled the agricultural productions of England, tripled those of Scotland, and transformed Belgium from a sterile waste into one of the most verdant and fertile provinces of continental Europe? Modern science applied to practical agriculture. Well has it been said, "Science is to practical skill in the arts of life what the soul is to the body. They are united as faith and works are in concerns of higher moment. As both, though separately good, must be united in the finished Christian, so the perfection of husbandry implies the union of all the lights of existing theoretical knowledge, with all the skill of the most improved agricultural practices."

It may be confidently asserted that to no other class of men is an acquaintance with the whole circle of the physical sciences so practically important as to the agricultural class. Nature is the farmer's daily companion, his munificent friend, his strong ally—with her he has to do in all his operations. Why then should he not sit with childlike docility at her feet, and learn her ways, study her laws, and hearken to all her kind, maternal teachings? On his farm are applied many of the principles which the chemist unfolds in his laboratory, the geologist in his cabinet, the botanist in his garden, and the artizan in his workshop. In tilling the soil preparatory to his crops, he finds it necessary in most cases to add some property, or counteract another; to separate, combine and modify

in various ways. How necessary then for him to understand the properties of his soil, in order to proceed wisely, and the chemical peculiarities of all the agents which contribute to quicken or check the growth of his crops! To aid him in these inquiries, chemistry, mineralogy and geology come to his assistance. His great business is the cultivation of useful plants, and the destruction of noxious ones. How valuable then to him is a knowledge of the laws of vegetable life, or an acquaintance with botany, in the largest signification of the term!

In performing his Herculean labors he finds it necessary to augment his strength and multiply his force, by bringing to his assistance the mechanical powers. The Pulley, the Screw, the Wheel and Axle, the Lever, and the Inclined Plane, are instruments of daily familiarity and importance to him. To whom then is the science of Mechanics more valuable? He may, indeed, acquire some or all of their principles by experience, tedious and dear-bought, but he would learn them more readily and accurately from books, and apply them more effectively. Experience is a slow and hard teacher, many times, while science is comparatively quick and easy, safe and sure.

In the successive stages of cultivation, whether in the garden, the orchard, or the grain-field, the farmer has to contend with the formidable hosts of the insect world, and put in requisition every expedient to stay their ravages. How essential then to him is a knowledge of their habits, propagation, and the times of their changes from the larvæ to the chrysalis, and from the chrysalis to the perfect insect, that his attempts to destroy them may be most timely and successful! Entomology, or the science of insects, would teach him that the nest of eggs, or colony of young worms, which he finds on his plants or fruit-trees, and which he might easily crush, will soon become the insatiable destroyers of his hopes, ravaging and desolating his domain, and teeming with countless millions of swarming progeny.

Very much in agricultural operations depends on the state of the weather, changes of temperature, cloud and sun, and

other atmospherical phenomena. Should not the farmer then know something of the science of meteorology, which would enable him "to discern the face of the sky," with reference to his future labors, and often save him from great inconvenience and heavy losses?

The domestic animals, with which the farmer's interests are so largely identified, are often overtaken by accidents and diseases—they turn their sick, imploring eyes to man for relief. Should not their owner then know something of comparative anatomy, physiology, and the symptoms of disease, with their proper treatment and cure? Such knowledge would often save their owner from serious losses, and what is more important, would enable him to alleviate the sufferings of the brute creation, and soften the rigors of the hard lot which was brought upon them by man's transgression?

"The heart is hard in nature, and unfit
For human fellowship, as being void
Of sympathy, and therefore dead alike
To love and friendship both, that is not pleased
With sight of animals enjoying life,
Nor feels their happiness augment his own."

Again, the agricultural class in this country embraces nearly four-fifths of its whole population. Hence the farmers of this nation have in trust its civil institutions, and all the great and varied interests involved in the critical experiment of self-government. How indispensable then to an enlightened and faithful discharge of his citizen duties is a knowledge of the fundamental principles of the government, the constitution, and general laws of the country, political economy, and all the paramount interests of the State and Nation.

It is not supposable that the great body of agriculturists can fully master all the sciences that have been mentioned as involved in their pursuit; but they can make themselves acquainted with their general principles, which would serve to guide them in studying the great book of Nature, which always lies wide open before them. The situation of the farmer is peculiarly favorable for the study of Nature in her

grand, simple and diversified operations. He is constantly with her in her changeful forms, and has only to look attentively and thoughtfully upon the varying leaves of the great volume, as she turns them over, to learn her laws, and the mysteries of her wondrous arcana. He is ally and co-worker with God himself in the great laboratory of Nature. While, on the one hand, skillful agriculture requires the most thorough and diversified knowledge of any pursuit in life, on the other, the facilities for acquiring such knowledge are greater than those enjoyed by any other occupation.

The farmer who neglects to improve these rich opportunities for his own elevation and advancement, foregoes the advantages and gratification which his pursuit naturally affords, and is as unprofited as the horse or the ox by his side. Like them he is listless to the teachings of Nature around him, and toils on, day after day, and year after year, with no eyes to see the beauty and grandeur which surround him; with no ears to hear the sweet whisperings of Nature's voice; with no heart to leap at the harmonies of her tuneful minstrelsy, and with no soul to feel the pervading presence of that great Being who formed and presides over all.

The education which is meant when it is said, *educate the farmer*, is not that intellectual training which our colleges and other antiquated schools impart, by no means. However excellent for other ends, they are unadapted to the wants of the agricultural class. But the kind of education needed is that which would qualify the farmer for all his relations and duties, both as a husbandman and a citizen, and send him forth in the full integrity of his manhood, with a sound and wakeful mind in a sound and industrious body. We want agricultural schools—one in each county of the State—which shall combine theory and practice, science and art, labor and study, and simultaneously teach the head to devise, and the hand to execute. We want such a system of physical and intellectual training for our sons, as shall develop the man in all the symmetry and glory of true manhood—a system which shall couple the mental exercises of the school-room with the

invigorating gymnastics of the field. Then shall we have a type of men who will combine in their constitution the strength and symmetry of the ancient Greek with the virtues and aspirations of the modern Christian, and science will pour her sunlight upon agriculture, guiding and cheering her on to nobler discoveries and higher achievements.

REMARKS BY THE SECRETARY.

I am happy to present, as the conclusion of my report, so valuable a paper upon a subject of such vital importance, which though hitherto sadly neglected, is now asserting its claims upon our attention.

We might talk about Agricultural Education, but as long as education only meant a knowledge of language and pure science, and there were no facilities for acquiring any other, it had little to interest the farmer.

Even Natural History was only to be studied in dry details of tedious technicalities, studiously avoiding connection with the daily concerns of life, or if popularized, so called, encumbered with fable and tradition to a degree distasteful to the true student. Now a corps of enthusiastic men, trained in the schools, and the world, are prepared to teach science in its connections with husbandry and the arts of daily life. In closing my report, allow me to commend to the young farmers of Connecticut, the Sheffield Scientific School of Yale College, which offers to them such rare facilities of study, and thanks to the liberality of individuals and the government, free to the citizens of the State.

All of which is respectfully submitted,

T. S. GOLD.

WEST CORNWALL, April 2d, 1867.

GENERAL ASSEMBLY,

MAY SESSION, A. D. 1866.

An Act to establish a State Board of Agriculture.

Be it enacted by the Senate and House of Representatives, in General Assembly convened:

SECTION 1. The governor, one person appointed from each county by the agricultural societies in each county, receiving an annual bounty from the State, and four other persons appointed by the governor, with the advice and consent of the Senate, shall constitute the State Board of Agriculture. Provided, in case any agricultural society above named shall neglect to appoint the member of this board to which it is entitled, the president of such society shall be the member for that county.

SEC. 2. One-half of the appointed members of the board shall retire from office on the second Wednesday of May in each year, according to their appointments. The vacancies thus occurring shall be filled by the Governor and Senate, or by the agricultural societies, as the offices were before filled; and the persons thus appointed shall hold their offices for two years from the expiration of the former terms. Other vacancies may be filled in the same manner for the remainder of vacant terms. At the first meeting of the board, the individuals whose term of office expires in one year shall be determined by lot.

SEC. 3. The board shall meet at one of the State capitals, where the General Assembly shall meet, at least once in each year, and as much oftener as may be deemed expedient. The compensation of the Board of Agriculture shall be three dollars per day for each member while engaged in the duties of his office, for a term of service not to exceed fifteen days in each year, besides the usual rate of fare to and from his place of residence.

SEC. 4. The Board may appoint and prescribe the duties of a secretary, who shall be, *ex-officio*, a member of the same; who shall receive for his services the sum of three dollars per day and his traveling expenses while engaged in the duties of his office.

SEC. 5. The board shall investigate such subjects relating to improvement in agriculture and horticulture in this State as they think proper, and may take, hold in trust, and exercise control over donations or bequests made to them for promoting agricultural education, or the general interests of husbandry.

SEC. 6. The board may prescribe forms for and regulate the returns required of the different agricultural societies, and furnish to the secretary of each such blanks as they deem necessary to secure uniform and reliable statistics; and any society neglecting in any year to comply with the regulations of the board shall not be entitled to the allowance from the State, as by law now provided, the year next succeeding.

SEC. 7. The board shall annually, on or before the fourth Wednesday of May, by their chairman or secretary, submit to the Legislature a detailed report of their doings, with such recommendations and suggestions as the interests of agriculture may require.

SEC. 8. The secretary of the board, under the direction of the Comptroller, shall in each year cause to be made and printed as full an abstract of the returns of the agricultural societies as he deems useful, together with the report to the Legislature; provided that the whole volume shall not exceed two hundred and fifty pages octavo, and the whole number to be printed shall not exceed three thousand, one thousand for the use of the General Assembly, and two thousand for distribution under direction of the board.

SEC. 9. The secretary shall visit different sections of the State, for the purpose of inquiring into the methods and wants of practical husbandry; ascertaining the adaptation of agricultural products to soil, climate, and markets; encouraging the establishment of farmers' clubs, agricultural libraries and reading-rooms, and of disseminating useful information in agriculture by means of lectures, or otherwise, and shall annually make a detailed report to the board.

SEC. 10. The secretary or members delegated by the board shall, as far as practicable, visit the different agricultural exhibitions in the State, and report to the board upon matters pertaining to the interests of agriculture, as indicated by these exhibitions.

SEC. 11. The Comptroller shall annually draw his order on the treasurer for such sums of money as may be necessary to defray the expenses of the board and secretary, provided for by this act, an account thereof having been first rendered by the secretary of the board, and audited by the Secretary of State, State Treasurer, and Comp-

troller; provided that the whole sum so expended shall not exceed fifteen hundred dollars.

SEC. 12. The first meeting of the board, for organization, shall be held in New Haven on the first Wednesday of August, 1866, and subsequent meetings may be called by the president or secretary upon the request of four members of the board.

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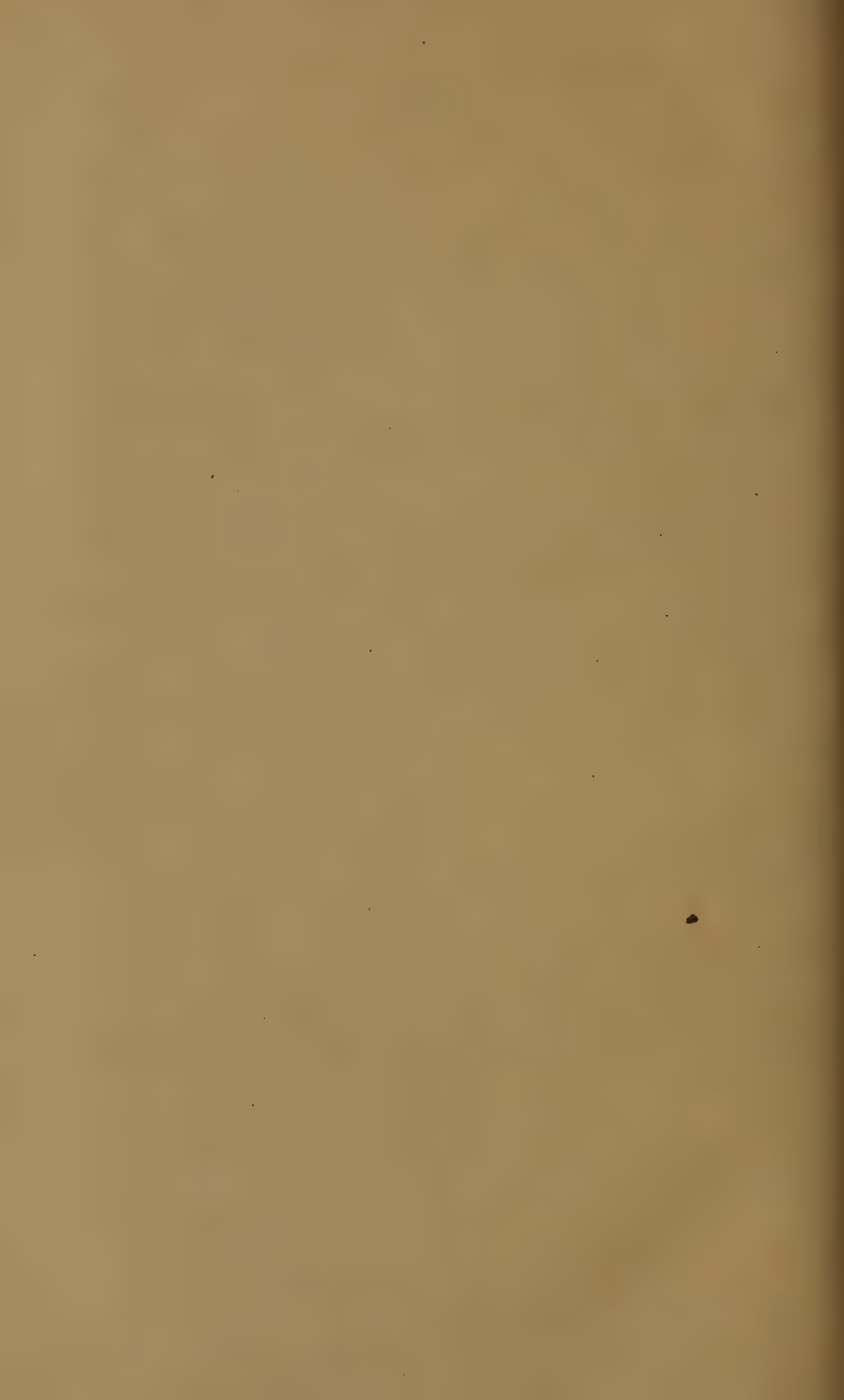
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ERRATA.

Page 32, third line from bottom, read $\frac{1}{2300}$ instead of $\frac{1}{5200}$.

“ bottom line, after “relating” add “small, has.”

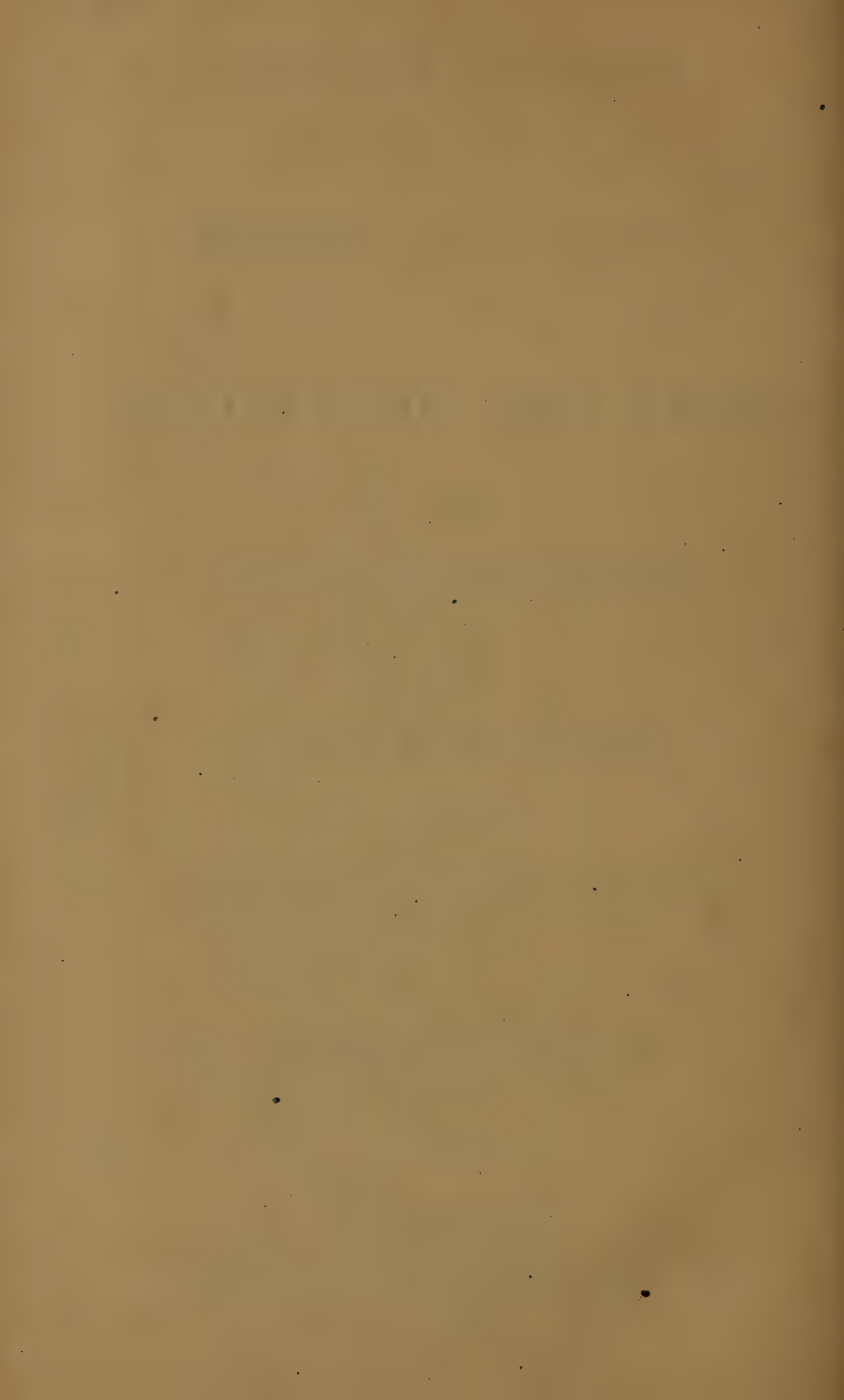
Page 48, fourteenth line from bottom, read “brine” instead of “urine.”



MAJORITY REPORT
OF THE
JOINT STANDING COMMITTEE
ON
CANVASS OF VOTES,
FOR
JUDGES OF PROBATE,
AND
JUSTICES OF THE PEACE,
FOR THE
DISTRICT OF MIDDLETOWN.

Printed by Order of the Legislature.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS.
1867.



REPORT.

GENERAL ASSEMBLY,
MAY SESSION, 1867.

THE Joint Select Committee on the Canvass of Votes for Judges of Probate and Justices of the Peace, to whom was referred a Resolution instructing said Committee to inquire into certain facts and allegations concerning the election of the Judge of Probate for the District of Middletown, and to report such action thereon as law and equity demand, beg leave to report that they have had the said matter under consideration and find the following facts:

It was in evidence and clearly proved before your Committee, that Charles G. R. Vinal and Elihu W. N. Starr, were the respective candidates for the office of Judge of Probate for the District of Middletown, at the last annual election, held on the first Monday of April, A. D. 1867; that there were cast in said District 1,245 votes for the said Vinal, and 1,245 votes for the said Starr, making a tie vote in said District, as declared by the several presiding officers in said District; that in said town of Middletown, the presiding officer on said day of election, after having ascertained the result of the ballots in the whole town, declared, or caused to be declared, the same in open meeting, at the place of voting in the first district in said town, as provided by law.

That according to said declaration the said Vinal received 839 votes, and the said Starr received 889 votes in said Middletown.

That the said presiding officer, within the time prescribed by law for returning the number of votes cast at said annual election, changed such result as declared by him in open meet-

ing, and made return as follows, to wit: for the said Vinal, 838 votes for the said Starr, 890 votes.

It was further shown to your Committee, that after the ballots cast at said election in said Middletown had been counted, and the result declared as aforesaid, they were placed in the care and custody of the said Elihu W. N. Starr, as Town Clerk of said town of Middletown, and conveyed to said Starr's office.

That on the following morning, according to the testimony of the said Starr before your Committee, the said Starr examined and counted said ballots, alone in his office, and claimed to have discovered a mistake in the count of the preceding day, and thereafter, on the same day, at the request of said Starr, the said presiding officer proceeded to re-count said ballots, and returned to the Board of Canvassers the result as aforesaid; but it was admitted that the said re-count was made without the knowledge of the said Vinal, or any member of the party to which he belonged. The above facts recited were not disputed by the respondents.

It was further shown to your Committee that two illegal votes were cast for the said Starr, at said election.

1st. The Committee find that the vote of Charles H. Johnson, cast at said election for the said Elihu W. N. Starr, was illegal, and ought not to have been received, for the following reasons:

That he left Middletown January 15th, 1867, to work in Hartford, where his parents resided. Said Johnson testified before your Committee, that he was a single man; had no home in Middletown after he went to Hartford; moved his trunk, all of his tools and effects to Hartford; worked in Hartford three months after January 15th; still resides in Hartford; did not apply to the Board of Registrar to have his name upon the Registry List, and further says his home is in Hartford; has continued to reside with his parents in Hartford to the present time.

2d. Your Committee find that the vote of Henry C. Balkley, cast in said election for the said Elihu W. N. Starr, was

illegal and fraudulent, and ought not to have been cast or received at said election for the following reasons:

That the said Bulkley was a single man, without family, and that his parents had resided in the town of Chatham since April, A. D. 1866.

That it was in evidence before your Committee, that a short time prior to the last annual election, the said Bulkley testified under oath, before the Board of Registration of the said town of Chatham, that he had resided in said town since his parents had removed from Middletown to said Chatham, and that he brought his trunk and clothing there at that time.

It appeared also in evidence, that the said Bulkley did not apply as the law directs, to the Board of Registrars, nor to Selectmen until Monday morning, April 1st. Said Bulkley testified that he had resided three or four weeks continuously with his father, at Chatham, and had continued to reside there to the present time.

It was further shown to your Committee, that the ballot of Frederick T. Glover, of said Middletown, which was offered at the proper place of voting in said Middletown, by the said Glover, with the name of Charles G. R. Vinal thereon, for Judge of Probate for said District, was unlawfully and unjustly rejected, when the same should have been received and counted for the said Vinal.

The Committee find that the said Glover was made an elector in said Middletown, in the Spring of 1866; that he had resided continuously in said Middletown, since 1863; that he was a student in the Wesleyan University in said Middletown; that his father was dead, and that he derived no support or aid from his mother, who resides in the State of New York; that he derived his support from business which he was pursuing in connection with his studies, at said Middletown; that when the first list of voters in the town of Middletown, for the district in which he resided, was published, the said Glover discovered that his name had been left off from said list.

The said Glover therefore took the necessary legal steps to secure his rights as an elector of said town of Middletown, and presented his ballot as aforesaid.

The Committee were unanimously of the opinion that the re-count made on the day after election, as hereinbefore described, was improper and against the policy of the law.

Upon the facts above alleged a majority of the Committee were of the opinion that the vote of the town of Middletown should remain as declared on election day; and that of the votes cast in said district for the said Elihu W. N. Starr, two were illegal and fraudulent, leaving 1,243 legal votes cast in said district for the said Starr, and that the whole number of votes cast in said district for the said Vinal was 1,245, and that the vote of said Glover should have been received and counted for the said Vinal, making in all 1,246 votes cast for said Vinal, and that the said Vinal was elected to the office of Judge of Probate for the District of Middletown, by a majority of three votes.

They therefore recommend the passage of the accompanying Resolution.

All of which is respectfully submitted.

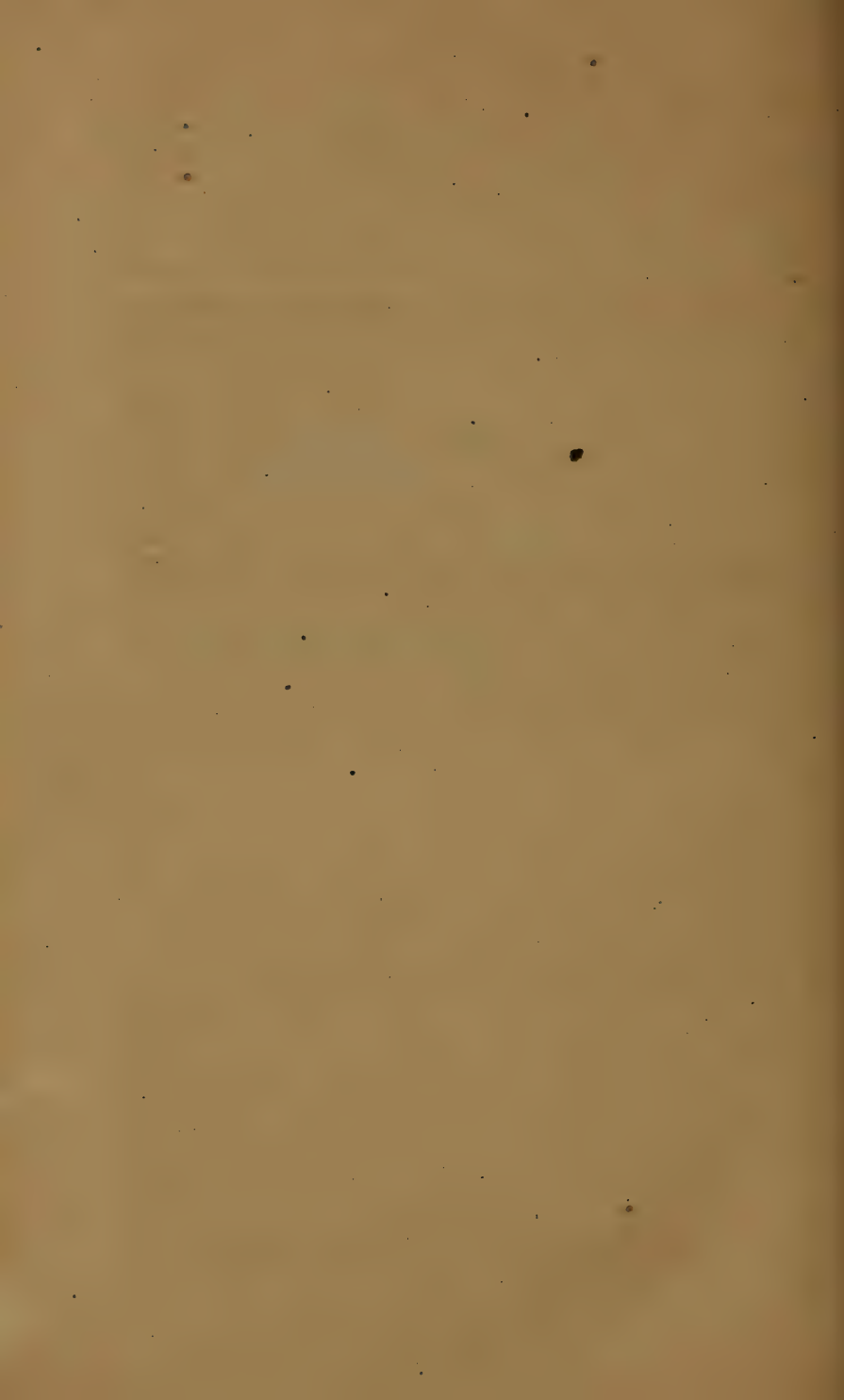
EARLE BUCKINGHAM,

Committee on part of Senate.

GENERAL ASSEMBLY,

MAY SESSION, A. D. 1867.

Resolved by this Assembly, That Charles G. R. Vinal be and hereby is declared legally elected Judge of Probate for the District of Middletown, for one year from and after the fourth day of July, A. D. 1867.



27
REPORT

OF THE

COMMITTEE ON CONTESTED ELECTIONS

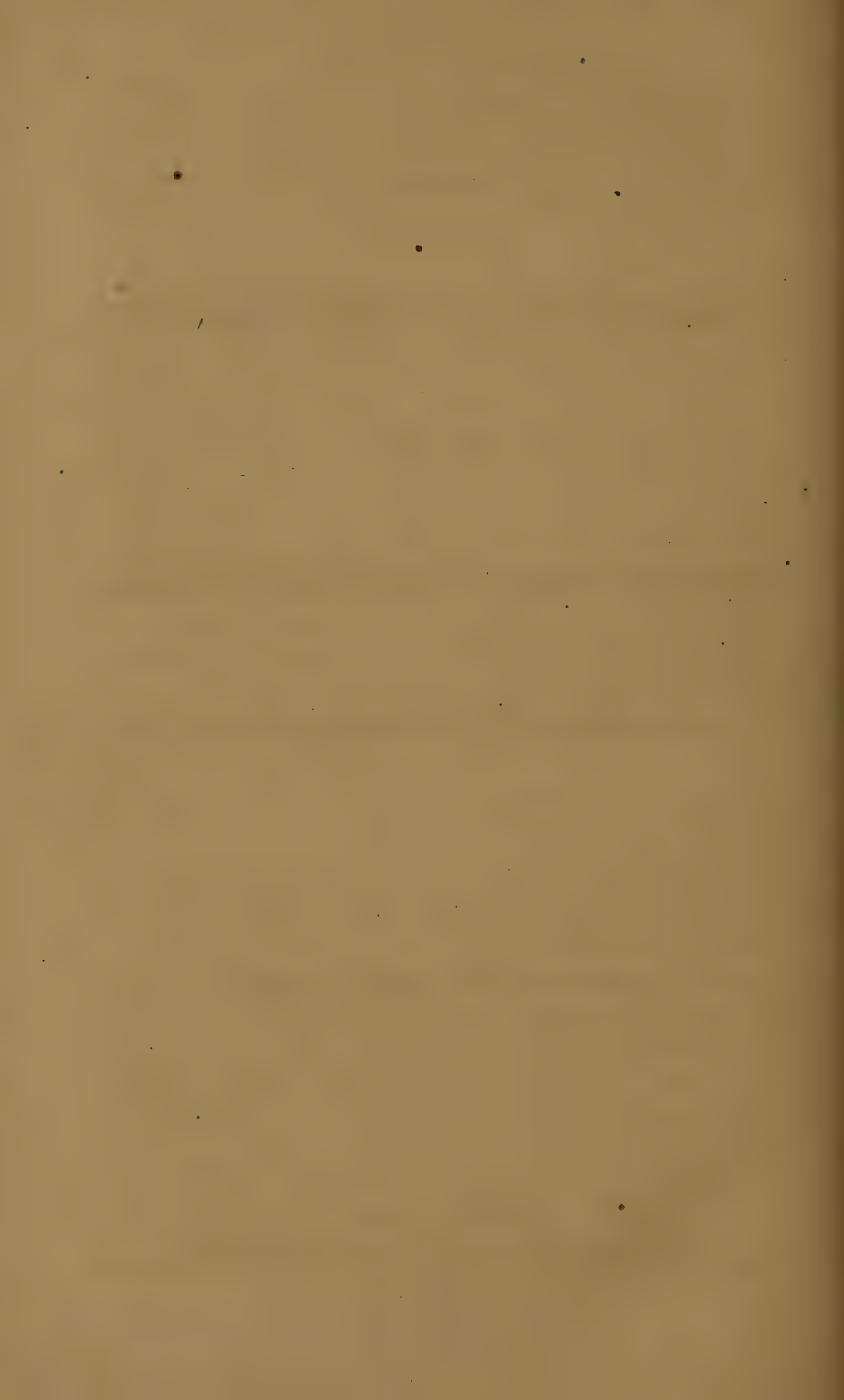
ON THE

Petitions of Chauncey Paul & Henry F. Corbin,

FOR SEATS IN THE HOUSE.

Printed by order of the Legislature.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS.
1867.



REPORT.

HOUSE OF REPRESENTATIVES, }
May Session, A. D. 1867. }

THE House Select Committee on Contested Elections, to whom was referred the petition of Chauncey Paul, claiming a seat in this House as a Representative from the town of Union, and setting forth that the sitting members from that town, to wit, Thomas Moore and Andrew Town, were not duly and lawfully elected thereto; also the petition of Henry F. Corbin for the same object, beg leave respectfully to report:

That they have had said petitions under consideration, and the undersigned, a majority of said committee, find the facts therein as follows:

The sitting members of this House from said town, to wit, Thomas Moore and Andrew Town, received respectively ninety-seven and ninety-six votes for representatives, as counted and declared by the presiding officer of the Electors' meeting, and the contestants, said Paul and Corbin, received each ninety-three votes therefor.

The contestants claimed that they were legally entitled to the votes of Milo P. Corbin and John J. Vinton, who applied to the board of registration to have their names placed on the registry list, and offered their votes for the contestants, but

were refused registration and denied the right of voting; and that Marcus L. Braman, Waldo L. Bradford, Amasa Coye, James L. Morse, Milton Starkey, Marlin Moore, Abraham L. Marcy, Augustine D. Hamilton and Willian Braman, who voted for the sitting members, were not lawfully entitled to vote.

The sitting members claimed that Marvin D. Kimball, Baldwin J. Vinton, Willis G. Howard, Joseph W. Mowry and Ezra M. Horton, who voted for the contestants, were not lawfully entitled to vote, or that their votes should for reasons hereinafter stated have been rejected.

1. The Committee find that at the last meeting of the board of registration before election, E. M. Horton, an elector of said town, applied to said board, then in session, for the registration of the name of Milo P. Corbin, and offered to said board a certificate in due form of law from the town clerk of the town of Woodstock that said Milo P. Corbin was an elector of this State, and had been admitted as such in said town of Woodstock, accompanied with evidence that said Corbin then resided and for four months next preceding had resided in said Union. That it was then about five o'clock in the afternoon, and the board caused inquiries to be made whether it was not past five o'clock. They were satisfied and found that it was not past five o'clock, and thereupon admitted said Corbin an elector of said town of Union. But subsequently, after adjournment, attempted to revoke their action in the premises, and refused to receive his vote on election day, solely on the ground that it was past five o'clock when said certificate was presented. The committee find that said Corbin had all the qualifications of a lawful elector of the town of Union, and are of the opinion that his vote should have been received and counted for the contestants.

2. The committee find that John J. Vinton resided, with his family, in the town of Union, from the 8th day of November, 1866, until after the first Monday in April, 1867; that Ezra M. Horton, an elector of the town of Union, applied at a proper time to the board for the registration of said Vinton's name as an elector, and offered a certificate in due form of

law from the town clerk of Woodstock that the said John J. Vinton had been previously admitted an elector of this State in said town of Woodstock, together with evidence that the said John J. Vinton had resided in said town of Union for the period of four months next preceding. The committee find the facts to be as above claimed, and that said Vinton had all the requisite qualifications of an elector of the town of Union.

Said board did not examine said applicant or any other elector under oath respecting the qualifications of said Vinton to vote in said town of Union, but rejected said application on the ground that they desired said Vinton's presence before the board. Said Vinton offered his vote on election day for the contestants, and was refused. The committee are unanimously of the opinion that his name should have been registered and his vote received.

3. The committee find that Marcus L. Braman had not resided in the town of Union for four months next preceding the day of election, but on the contrary had resided in Providence, Rhode Island, from the first day of October, 1866, until the month of March, 1867; and was not therefore, in the opinion of the committee, entitled to vote in the town of Union.

4. Your committee find that Waldo L. Bradford, who had been previously admitted an elector of this State in the town of Woodstock, and had resided there with his family until about the 20th day of November, 1866, removed into the town of Union during the same month, and resided there until after the day of election; that on account of the difficulty of obtaining a dwelling house for immediate occupancy in the town of Union he did not bring his family there until the 3d day of December, 1866, but that they had broken up house-keeping in the town of Woodstock, and were only remaining there temporarily until a dwelling house could be obtained in Union.

The committee are unanimously of the opinion that his vote was rightfully received.

5. Your Committee find that Amasa Coye did not reside on the day of election, and for many years prior thereto had

not resided, in the town of Union, but was a resident of the State of Massachusetts, and are, therefore, of the opinion that his vote should have been rejected.

6. That James L. Morse, who had formerly been an elector of the town of Union, lived, with his family, and kept house, in Worcester, Massachusetts, for some months prior to and until November 1866; he then came with his family to Hartford, Connecticut, on a visit, where he remained with them until the 3d day of December, 1866; that on that day, leaving his family in Hartford, said Morse went to the town of Union, and subsequently, about the 25th of December, brought his family there from Hartford, and also removed his furniture from Worcester, and that he commenced house-keeping in Union in the early part of January 1867. The committee therefore find that he had not resided in the town of Union four months next preceding the day of election, and are of the opinion that his vote should not have been received.

7. The Committee find that Milton Starkey, who had previously been a lawful elector of the town of Union, spent a considerable portion of the last year and the four months preceding election, in the town of Southbridge, Massachusetts, where he was temporarily engaged in working at his trade, but his residence remained in said Union. It is the unanimous opinion of the Committee that his vote was properly received.

8. That Martin Moore, who was formerly a resident and an elector of the town of Union, did not reside therein on the first Monday of April, 1867, and had not resided there for more than one year prior thereto, but resided, and for more than one year had resided in the State of Massachusetts. They are therefore of the opinion that his vote should have been rejected.

9, 10. Your Committee find that Abraham L. Marcy and Augustine D. Hamilton both removed from the State of Massachusetts into the town of Union before the 1st day of April, 1866, and resided there until after the 1st of April, 1867, they had both broken up housekeeping before the 1st of April,

1866, but on account of the difficulty of obtaining tenements for immediate occupancy in Union, their families were visiting among their friends or otherwise temporarily sojourning in Massachusetts until shortly after the 1st of April 1866, when both removed their families and household goods to the town of Union, and commenced housekeeping there. It is the unanimous opinion of your committee that their votes were properly received.

11. That William Braman has resided in Massachusetts from the month of December 1866, until the present time, and was not therefore a lawful elector of the town of Union on the first Monday of April last.

12. That Marvin D. Kimball, whose mother is a widow and resides in the town of Willington, has been accustomed to spend a small portion of his time with her, assisting in the care of her place, and providing her with the necessary means of support; that he hired the place where she resides and pays the rent therefor, is accustomed to go there in case of sickness, and has frequently declared that to be his home. That he was in the employ of one Mr. Dimock in Union, and lived in his family (being a single man) for about a year and a half prior to election, with the exception of a short period in the last autumn or winter, when he worked in a factory in Stafford. The committee find by a preponderance of testimony, that he was not a resident of the town of Union and not entitled to vote there at the election in question.

13. That Willis G. Howard came into the town of Union, being a single man, to work, in the month of March 1866, with the intention of returning to Woodstock, where his home was and where he was a voter, when the period of his engagement in Union should expire. He voted in Woodstock in April and October 1866, but continued to work in Union until the 3d of December, when he was married in Union, and has continued to live there since. The undersigned, not without hesitation, find by a preponderance of testimony, that he had not had four months legal residence in Union prior to the 1st of April, and was not therefore entitled to vote.

14. It was claimed by the sitting members that Baldwin J. Vinton had not attained the age of twenty-one years on the day of election. The committee find that he had attained that age, and, as no other qualification was wanting, they find that his vote was properly received.

15. It appeared in evidence, and is found by the committee, that the name of Joseph W. Mowry, who was a lawful and duly registered elector of the town, had been checked on the registry list by the clerk of the board of registration when he presented himself to vote; but the committee unanimously find that he had not previously voted. The presiding officer received his vote, and, in the opinion of the committee, acted properly in so doing.

16. That Ezra M. Horton, a lawful elector of the town of Union, placed his ticket on the ballot-box, and when he had so placed it, discovered that he had unintentionally placed upon the box two tickets which adhered together. The attention of the presiding officer was immediately called to the fact by said Horton, before the tickets were deposited in the box, and by another elector who stood near; and said Horton requested the presiding officer not to deposit both said tickets in the box, but to throw out or return one of them to him. The presiding officer, before fully understanding the request of Mr. Horton, and without any wrong intention, deposited both said ballots in the box. Only one person had before voted, and there being no difficulty in determining which were the ballots deposited by Horton, as said other person had voted for the sitting members, the presiding officer immediately, and before any more votes were cast, in full view of all the electors then present, and without objection on the part of any one, opened the ballot-box, removed the two votes so deposited by mistake and returned them to Mr. Horton, who was permitted, without objection on the part of any one, to deposit one of said votes again in said box.

The committee unanimously find that both said Horton and the presiding officer acted without any fraudulent intent in the matter.

In the opinion of the undersigned, the vote of Mr. Horton should not be rejected.

From the foregoing facts, the conclusion of your committee is that Thomas Moore received ninety-two legal votes, and Andrew Town received ninety-one legal votes ; that Chauncey Paul and Henry F. Corbin each should have received, and were legally entitled to ninety-three votes. Your committee therefore recommend the passage of the accompanying resolutions.

All which is respectfully submitted.

ASA B. WOODWARD,
GEORGE MALLORY.

RESOLUTIONS.

HOUSE OF REPRESENTATIVES, }
 MAY SESSION, A. D. 1867. }

1 *Resolved*, That Andrew Town was not lawfully elected,
 2 and is not entitled to a seat in this House as a representa-
 3 tive from the town of Union.

1 *Resolved*, That Thomas Moore was not lawfully elected,
 2 and is not entitled to a seat in this House as a representa-
 3 tive of the town of Union.

1 *Resolved*, That Chauncey Paul and Henry F. Corbin
 2 were duly elected representatives to the present General
 3 Assembly from the town of Union, and are therefore hereby
 4 declared to be, and are admitted to seats as such in this
 5 House.

MINORITY REPORT

OF THE

COMMITTEE ON CONTESTED ELECTIONS

ON THE

Petitions of Chauncey Paul & Henry F. Corbin,

FOR SEATS IN THE HOUSE.

Printed by order of the Legislature.

HARTFORD:

CASE, LOCKWOOD AND COMPANY, PRINTERS.

1867.

REPORT.

HOUSE OF REPRESENTATIVES, }
May Session, A. D. 1867. }

The undersigned, a minority of the Committee on Contested Elections, to whom was referred the petitions of Chauncey Paul against the right of Thomas Moore and Andrew Town to seats in this House as representatives from the town of Union, also the petition of Henry F. Corbin for the same object, begs leave to report, that he has had said petitions under consideration, and not being able to agree with the majority of the committee in the conclusions arrived at by them, in reporting and recommending resolutions to unseat the sitting members and declare Chauncey Paul and Henry F. Corbin entitled to represent the town of Union in this House, submits the following report:

The undersigned agreed with the majority of the committee as to the right of John J. Vinton to vote in said Union at the last election, and that his vote should legally be counted in favor of the contestants, and also agreed with the majority of the committee that Waldo L. Bradford, Milton Starkey, Abraham L. Marcy and Augustus D. Hamilton were legal voters in said Union at the last election. And your committee also agreed with the majority, and finds that Marvin D. Kimball was not a legal voter in the town of Union at the last election, and that his vote which was given for the contestants should be rejected.

And your committee finds that Willis G. Howard, who voted at the last election in Union for Chauncey Paul and Henry F. Corbin as representatives in the General Assembly, was at that time a legal voter in said Union, and that said vote should be counted in favor of said contestants, instead of being rejected, as reported by the majority of the committee.

In reference to the claim of the contestants that they are entitled to have Milo P. Corbin counted as a legal voter, and in their favor, your committee finds the following facts proved and true. That at the last meeting of the board of registration of said Union, the board, after having been in session all day as the Statute requires, and until (as said board found and believed) five o'clock in the afternoon, had adjourned without day, and one member of the board had left the Town Hall, and another had started to leave the Town Hall, on their way home, and the books and papers pertaining to their business had been packed up with a view to their immediate removal, that just at this posture of affairs, E. M. Horton arrived at the Town Hall in great haste, having just returned from Woodstock, whence he had been to procure the certificate of said Milo P. Corbin; that said Horton claimed it was not five o'clock, and offered said certificate and insisted upon the same being received and the name of said Corbin being added to the list of legal voters of said town of Union; that the board, in what your committee finds to have been a disposition of fairness and a desire to do right, upon consultation, decided if they were mistaken and had adjourned before it was five o'clock, if they could be satisfied of said mistake, they would reconsider their action in reference to adjourning, and entertain said application; and, thereupon, some member of the board sent George W. Adams to the neighbors to ascertain the time of day, (no time-piece being present before the board;) that said Adams inquired and found that, according to the time of Ezra Horton, father of said E. M. Horton, it was at that time half-past four o'clock, said time-piece having been set by the meeting-house; that said Adams inquired at three other places, that at two of them it was then half-past five o'clock, and at one twenty-five minutes past five o'clock,

and that said Adams reported said facts to the board, and thereupon said board refused to reconsider its adjournment and to entertain said application, declaring that it was past five o'clock when said E. M. Horton arrived at the Town Hall with said certificate. It was proved in evidence by the testimony of Stephen H. Morse, Thomas A. Hudson, Dwight Corties and Michael McDonald, that they each saw said E. M. Horton on his way and near to the Town Hall, evidently riding in great haste, on said last day of the meeting of said board, and that they each examined the time, and it was from half-past five o'clock to twenty-one minutes of six o'clock by two different time-pieces. These witnesses were in plain sight of the Town Hall, and at the time about fifteen rods therefrom.

It was also proved by two members of the Board that they passed immediately from said Town Hall to the house of David L. Newell, the town clerk, and on their arrival there it was ten minutes of six o'clock by said Newell's time; that said Newell resided about eighty rods from the Town Hall, and said witnesses testified, and your committee finds, that they were not over ten minutes on their way, and that they started from the Town Hall within twenty minutes after the arrival of said E. M. Horton.

Your Committee finds that when E. M. Horton arrived at said Town Hall with said certificate, said Board had adjourned without day, on the ground that it was after five o'clock; and that, in fact, it was some where between twenty minutes past five o'clock and forty minutes past five o'clock; that in the opinion of your committee it is proved beyond a peradventure to have been past five o'clock, and that in this respect the proof was very conclusive and satisfactory. Your Committee, therefore, finds that, in his opinion, the said Milo P. Corbin was not entitled to vote at said election in the town of Union, because said certificate was not presented to said Board within the time prescribed by law, and while the same was lawfully in session.

Your Committee finds that Marcus L. Braman has lived in Union for several years, has been a legal voter there since

1862, and confessedly a lawful voter there down to and inclusive of the year 1866; that in January, 1866, the said Braman and wife took up their residence with Daniel Braman, in said Union, the father of Marcus L., and continued to reside there until in Oct., 1866, when he left Union and went to Providence, Rhode Island, upon a temporary absence, with the intention of returning again to Union; that he left at his father's, in Union, most of his personal effects and all his furniture—taking with him only his wearing apparel; that his wife left with him, and while absent in Providence they did not keep house, but boarded with Mrs. McCann, the mother of Mrs. Braman; that in pursuance of his intention when he left Union, he returned back after the temporary cause of his absence had determined, which was about the first day of March, 1867, and has continued to reside there ever since. That the said Braman and wife both testified and claimed that their home was at said Daniel Braman's during all said time since January, 1866, and, also, Daniel Braman and his wife testified to the same effect, and all said witnesses testified that said absence at Providence was only temporary. In the opinion of your Committee, upon the foregoing facts, the said Marcus L. Braman was a legal voter in said Union, and his vote was lawfully received and counted in favor of the sitting members.

In the case of Martin Moore, reported by the majority of the committee as an illegal voter, your committee finds the following facts proved and true, and admitted to be true. That said Moore, sixteen years since, lost his wife, and soon after that, Captain Nathaniel Newell, of Union, (whose son had married a daughter of Mr. Moore,) tendered to him a home at his (Capt. Newell's house,) which was accepted by said Moore, and thereupon he moved all his household effects, such as furniture, bed and bedding, &c., to the house of Capt. Newell, where the same still remains, and has ever since. That said Moore has ever since remained single, and has been in the habit of going to and returning from Capt. Newell's just when he pleased, and being a laboring man, has worked out where he could best find employment, but all the time

claiming his residence in Union, and his home at Capt. Newell's; that he has voted in Union during all these sixteen years, and been assessed and paid his taxes every year until the last one, when his poll tax was abated by reason of his being seventy years of age, and that during all that time no one ever questioned the right of said Moore to vote in said Union, until one year since, when Chauncey Paul, (one of the petitioners,) attacked the same in reference to a probate election in the district of Stafford. The evidence in the case of said Moore, in the opinion of the undersigned, needs only to be known to determine in the minds of all unprejudiced persons, that said Moore has as clear a right to his suffrage in said Union as any voter in said town. Your committee is at a loss to know upon what grounds the majority of the committee base their report in said Moore's case. In the opinion of your committee, the said Martin Moore was on the first Monday of April, 1867, a legal voter in said Union, and the rejection of his vote would be an act of very great injustice to all concerned.

In the case of William Braman, who voted in Union at the last election for the sitting members, and who in the report of the majority is found to have voted illegally, the facts as proved in evidence were as follows: The said Braman is a son of Daniel Braman, of Union, and has voted in said Union for twelve years in succession; had made it his home with his father until about the 7th of April, 1867, when he went to keeping house in Warren, Massachusetts; that he was married in the early part of December, 1866, and his relations as to his residence and home were not changed thereby; that during these twelve years, he was in the habit of being temporarily absent from Union at work for weeks, and sometimes months at a time, but his right to vote in said Union was never challenged or questioned, until the present instance; that during all that time he paid taxes in said town, and stands assessed on his poll and also on personal property in the list of 1866, which tax said Braman admits to be correct. That said Braman testified that he never had any other home

but at his father's until April 7th, 1867, and this evidence is corroborated by his father and mother, and a number of other witnesses, and is not contradicted by any one. Upon these facts, in the opinion of your committee, the said William Braman was a legal voter in Union, on the first Monday of April, 1867.

Your committee further finds that Baldwin J. Vinton, who voted for the contestants, was not on said day of election and is not now twenty-one years of age, and will not be until the 25th day of December, 1867; that by the family bible kept by the father of said Baldwin J. he was born Dec. 25th, 1846, and that it was proved by several witnesses before your committee that the said Baldwin J. in Dec. 1866 and before the 25th of the month, declared in their hearing that he should be twenty years of age on the 25th of Dec. and also at other times in the presence of others made similar declarations as to his age; your committee therefore reports that said vote so given for the contestants by said Baldwin J. Vinton should be rejected as unlawful.

In the case of Amasa Coe, the undersigned agrees with the majority of the committee without hesitation and in the case of James L. Morse with very much hesitation and doubt I have concluded to concur with the majority in their report.

Your committee finds that at said election, Ezra M. Horton in voting for Representatives placed on the Representative box a double ballot for Representatives, said Paul and Corbin, and the same was deposited in said box by the moderator and immediately thereafter some elector claimed that it was a double ballot, and thereupon said moderator opened the ballot box and found that said ballot was double and instead of throwing them both out, took out one and gave it to said Horton, and left the other in said ballot box. I do not find that said Horton intentionally cast said double ballot but that the same was innocently done. In the opinions of your committee according to our Statute law regulating elections it was the duty of said moderator to have rejected both of said ballots as the language of the law is thus, "whenever there

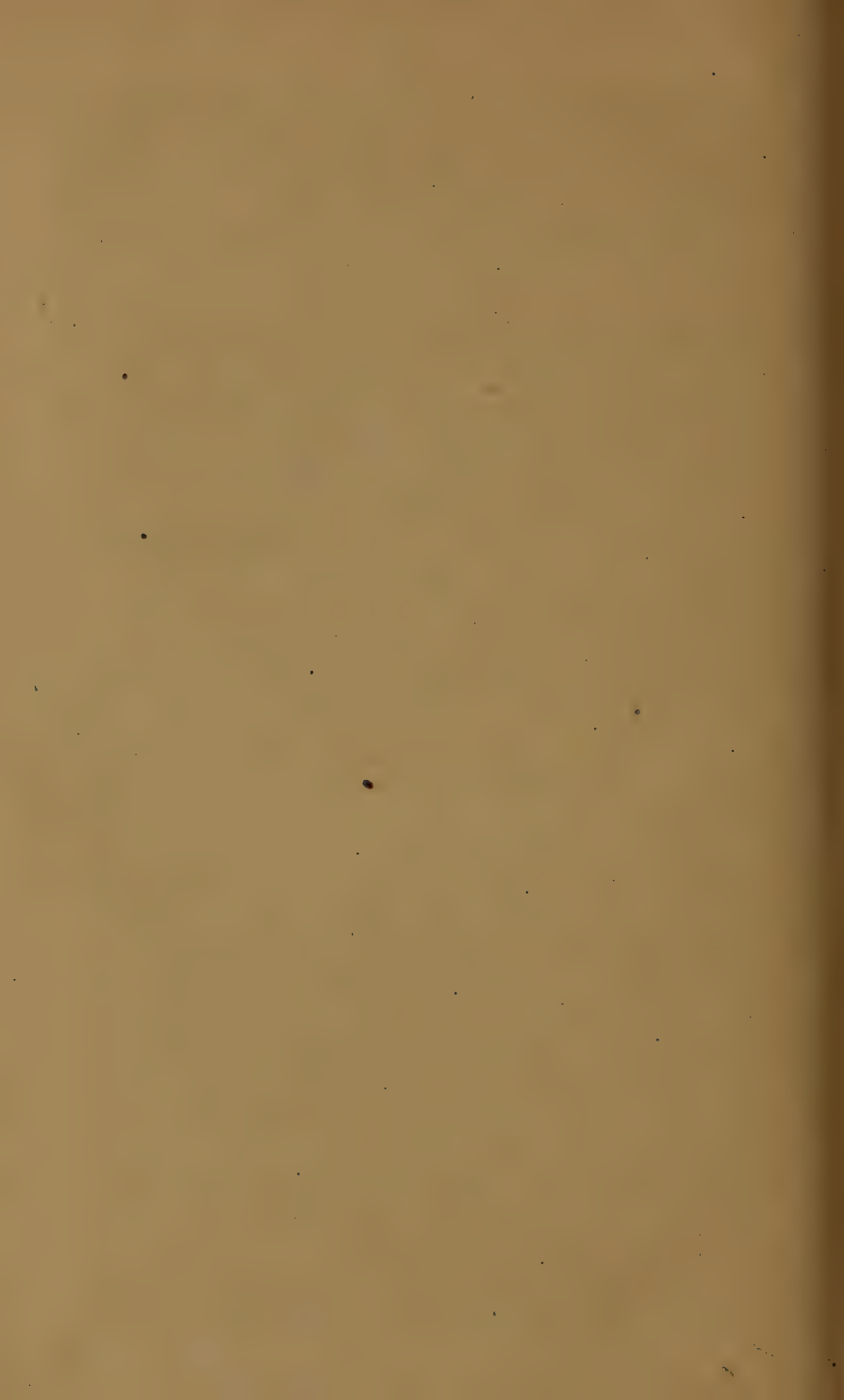
shall be found in either of said boxes double ballots for any of the officers to be so balloted for, the same shall not be counted but shall be wholly rejected as having been fraudulently deposited in violation of this Act."

Your committee therefore finds that said Thomas Moore and Andrew Town are entitled to hold their seats as members of this House, they having received a majority of the legal votes of the town of Union therefor, and therefore recommends that said Chauncey Paul and Henry F. Corbin each have leave to withdraw his petition, and that the resolutions reported by a majority of the committee do not pass.

All which is respectfully submitted,

HENRY B. GRAVES,

Minority Committee.



REPORT
OF THE
JOINT STANDING COMMITTEE ON FINANCE
ON
RESOLUTIONS OF INSTRUCTION
TO
FINANCE COMMITTEE,
DE
STATE TREASURER'S ACCOUNTS.

Printed by order of the Legislature.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS.
1867.

REPORT.

GENERAL ASSEMBLY,

MAY SESSION, 1867.

THE Joint Standing Committee on Finance, to whom was referred the "Resolution instructing the Finance Committee," also, "Resolution of instructions to Finance Committee," beg leave to report—

That they have had the same under consideration. That immediately upon receipt of the first mentioned resolution, in the early part of the session, the committee proceeded to investigate the accounts of the State Treasurer for the fiscal year ending March 31st, 1866, as by said resolution directed.

That the committee called before them the committee appointed by the last General Assembly to audit said accounts, also the late Treasurer, Gabriel W. Coite, and other witnesses and took a large amount of testimony relating to said subject.

That as the result of such investigation the committee finds as follows:

As to the first item mentioned in the report of said auditors, the charge of \$9,100 for Connecticut State Bonds, furnished by the Treasurer at par, when the market value of those bonds was only 93 to 93 1-2 per cent., these are the facts, as found by the committee.

One Henry Coe, of New York, a brother-in-law of Mr. Coite, had subscribed for \$26,000 of Connecticut State Bonds at par. Before the Bonds were ready for delivery, Mr. Coe died. When the bonds were ready, Mr. Coite took a portion of them, to the amount of \$9,100, taking them, as he alleges, as collateral security for a temporary loan of that amount to the State, and Mr. Coe's representatives the remainder; that said representatives would have taken the whole at par had not Mr. Coite taken a portion as aforesaid.

Therefore the committee find that Mr. Coite is indebted to the State to the amount of the difference between the par value of said bonds and the market value of the same at the time they were returned, being the sum of \$591.50, less the sum of \$197.17, the accrued interest on said bonds, leaving a balance of \$394.33.

As to the next item found due from Mr. Coite, in said Auditor's report, being the sum of \$616.99 charged twice, on examination of the Treasurer's books the account was explained to the satisfaction of your committee.

The item \$35.16 next mentioned in said report as charged twice, your committee find to be a clerical error, and due from Mr. Coite to the State.

Your committee examined several witnesses relative to the transactions with the State Bank mentioned in said Auditor's report.

All the evidence taken by the committee upon that subject, was to the effect that no part of the deficit, as shown in said report, was received by Mr. Coite, or any one connected with the Treasurer's office.

Before the committee had completed the investigation of the last-mentioned subject, said second resolution, very much enlarging the field of inquiry, and providing for the attendance of the State's Attorney, was received by them.

In pursuance of the terms of said Resolution, they requested the attendance of the State's Attorney for Hartford

County, to conduct said inquiry in behalf of the State ; that said officer and his partner have been both constantly engaged since the passage of the resolution, in the trial of previously assigned cases, and have been unable to attend or assist in this investigation ; that counsel authorized by said State's Attorney to act in his behalf, appeared before the committee, and after examining said resolution, advised, that an investigation of the subject matters referred to in the resolution, if conducted in a thorough and satisfactory manner, would require much more time and labor than in his judgment could be devoted by the committee.

That your committee concur in believing, that in order to do justice either to the State, or the parties mentioned in the resolution, and to examine satisfactorily to themselves, the persons and papers connected with the various matters mentioned therein, they would be compelled to devote an amount of time, which at the present stage of the session, cannot be spared from the sessions of the Legislature, and the requisite time cannot be given to the subject by any committee of the General Assembly.

Therefore, if it is desired to prosecute the investigation contemplated by said resolutions, your committee are of opinion that a committee of three persons shall be appointed to whom the testimony taken by your committee shall be submitted, and who shall examine into the subject matter of the resolution, with the assistance of the State's Attorney for Hartford County, with power to send for persons and papers, after the adjournment of the General Assembly, who shall report the facts by them found to His Excellency, the Governor, for transmission to the next session of the General Assembly.

All of which is respectfully submitted.

A. J. COE,
Chairman on part of the House.

REPORT

OF THE

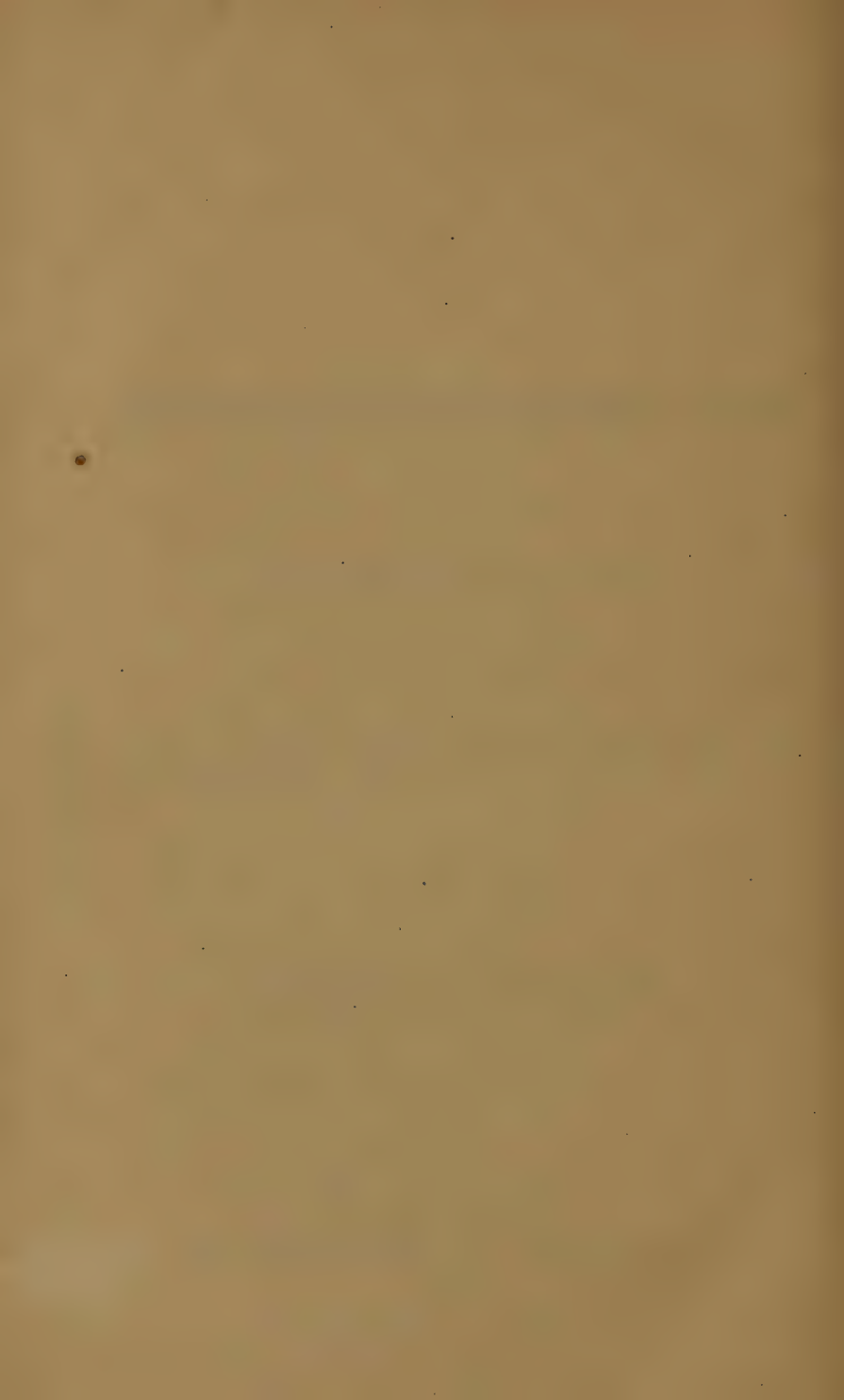
JOINT STANDING COMMITTEE ON FINANCE,

UPON RESOLUTIONS RESPECTING

TAXES OF INSURANCE COMPANIES.

Printed by order of the Legislature.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS.
1867.



REPORT.

GENERAL ASSEMBLY, }
May Session, A. D. 1867. }

THE Joint Standing Committee on Finance, having been directed by resolution to ascertain and report what Insurance Companies, whether life, fire or accident, have failed to pay into the Treasury of the State the amount of taxes due from said companies, beg leave to submit the following report:

That they have made as thorough an investigation of the matter referred to them as time and a proper attention to other business would allow.

The Committee find that there is due to the State as taxes, under the 48th Section of the Act for the Assessment and Collection of Taxes, as follows:

From Ætna Life Insurance Company, for 1865,	\$614.61
“ “ “ “ “ 1866,	8,846.00
In all, - - - - -	<u>\$9,460.61</u>
From Charter Oak Life Insurance Co., for 1865,	\$2,122.48
“ “ “ “ “ 1866,	5,894.78
In all, - - - - -	<u>\$8,017.26</u>

In the opinion of the Committee, the above named companies are clearly liable for the above amounts.

The Committee also find that in the years 1865 and 1866, the Connecticut Mutual Life Insurance Company, in making returns under said 48th Section, deducted from the amount

of their capital the amount invested in government securities and State non-taxable bonds, and paid no tax upon that portion of their capital ; and in arriving at the aforesaid amount as due from the Ætna Life Insurance Company, we have not included their government securities.

If the State can legally tax that portion of the capital of such companies which is invested in government securities, there is due from the Connecticut Mutual Life Insurance Company,

For the year 1865,	-	-	-	-	\$31,340.26
For the year 1866,	-	-	-	-	31,411.75
In all, -					<hr/> \$62,752.01

And from the Ætna Life Insurance Company, for the years 1865 and 1866, the sum of \$5,754.93 in addition to the amount found to be due by your Committee.

Upon the question whether the State can legally tax that portion of the capital of said companies which is invested in government securities, the Committee would express no opinion, as a decision in a case now pending in the Supreme Court of the United States, involving the right of the State to tax deposits of Savings Banks similarly invested, will undoubtedly settle the question. The language of the 48th Section above referred to would seem to include government securities as well as other assets.

The Ætna Life Insurance Company and the Charter Oak Life Insurance Company, have paid the tax of one-fourth of one per cent. upon the market value of their capital stock as required by the 52d Section of the act referred to, and claim not to be liable to pay a tax under the 48th Section ; but your Committee are clearly of the opinion that they are liable, under the said 48th Section, to pay the amounts specified in this report, and the Committee would recommend that the Treasurer be directed to collect the same.

All of which is respectfully submitted.

WILLIAM C. STREET, *Chairman.*

REPORT

OF THE

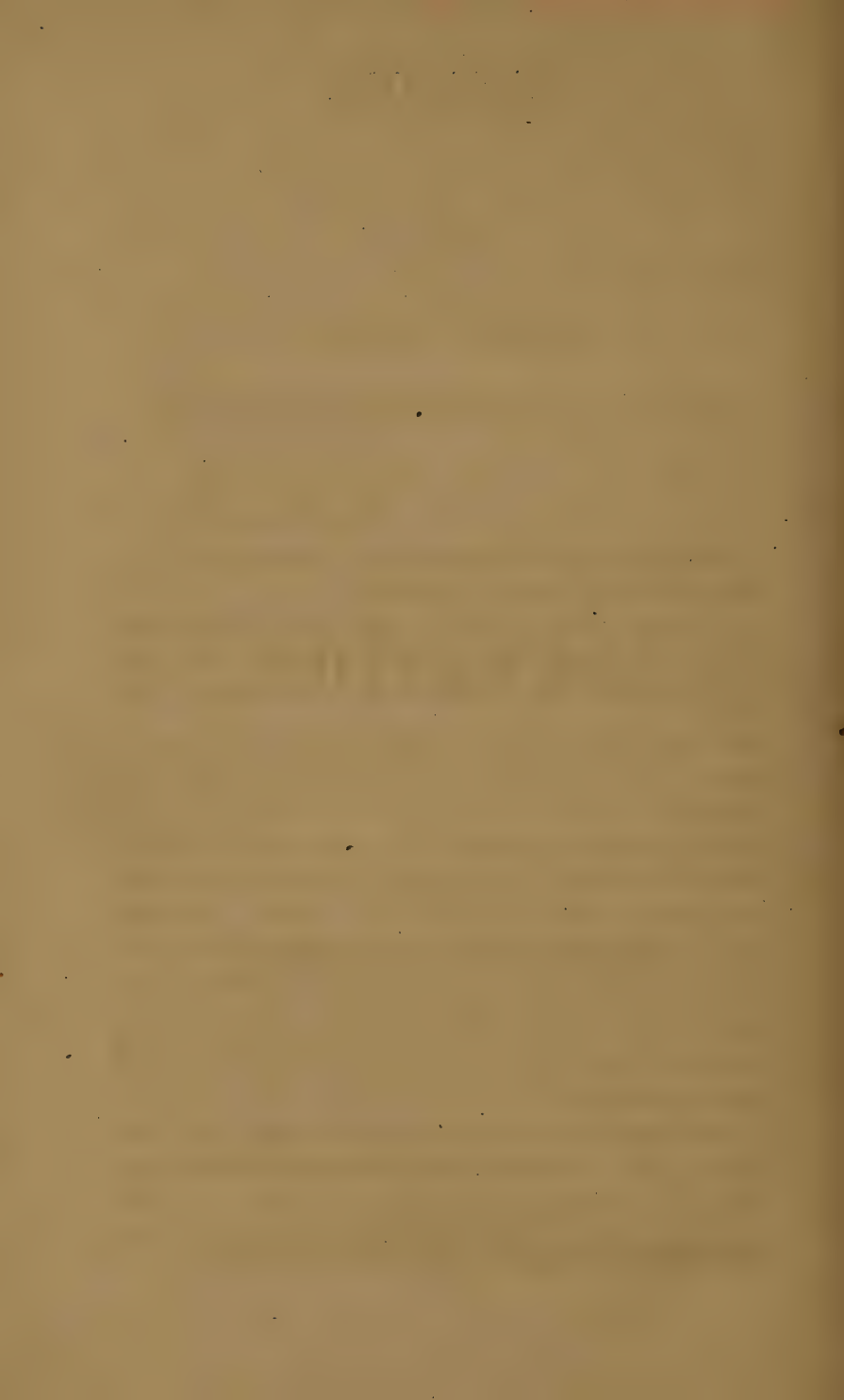
JOINT STANDING COMMITTEE

ON

EDUCATION.

Printed by Order of the Legislature.

HARTFORD:
CASE, LOCKWOOD & COMPANY.
1867.



REPORT.

GENERAL ASSEMBLY,
May Session, 1867.

THE Joint Standing Committee on Education, to whom was referred the following resolution :

“ *Resolved*, That the State Normal School, having never realized the expectations of its advocates, and being less useful now than ever, does not deserve the support of the State,”

Have had the same under consideration, and beg leave to report, that in prosecuting the enquiries demanded by the resolution, they have visited the Normal School at New Britain, became acquainted with its teachers, and observed their mode of imparting instruction, and the aptness and proficiency of the pupils under their charge. They have also invited to appear before them eminent gentlemen who feel a deep interest in the educational prosperity of the State, and others who have heretofore been connected with the School as teachers, and others, still, who, having resided in its vicinity, have been familiar with its history from its foundation.

The School was opened on the 15th of May, 1850, with thirty pupils. Since that time, twenty-three hundred and forty-nine persons have attended it for a longer or shorter period, and two hundred and fifty-nine have received its diplomas on finishing the prescribed course of study. A

very large proportion of its students, including every graduate, with the exception of thirty-five, have been engaged in the work of teaching in the State since they were members of this School. Of the number of thirty-five graduates who have not yet commenced teaching, fourteen graduated in the present month, and the character of the pursuit they will adopt cannot be stated, although it is probable that they will become teachers. Including \$13,639.60 received as a bonus for the charters of two banks, there has been appropriated to this Institution by the State, up to this time, the sum of \$85,539.60.

Until the summer of 1865, the School was under the management of a Board of Trustees appointed by the State, and the instruction was given by a corps of teachers, the principal of whom was, at the same time, the Superintendent of our Common Schools. By the General Assembly of 1865, this mode of management was abandoned, and in lieu thereof was substituted a Board of Education, consisting of the Governor and Lieut.-Governor ex-officio, and four additional members who are appointed by the Legislature, one from each of the Congressional Districts of the State, and a Corps of Instructors and a Secretary, who are appointed by the Board. This Board of Education also discharge the duty of superintending the public schools of the State.

The Normal School is no longer an experiment in the other States of this country. The first Normal School in America was started in Lexington, Mass., July 3, 1839. It opened with only *three* pupils, and in the face of so much opposition, that it was for some time feared that it would die at its birth or be stifled in its cradle. But experience demonstrated its usefulness and necessity. Soon it grew so much in popular esteem that another school was established, and then a third, and, finally, a fourth school was organized. Though begun as an experiment, their success disarmed prejudice, and converted opponents to friends.

Massachusetts now appropriates \$36,000 annually for her four Normal Schools; \$8,000 to each for ordinary expenses, and \$1,000 to each school to assist in paying the board of indigent members. Eight years ago, some opposition having been manifested to the Normal Schools, a circular was sent to all the school committees of the State, in which they were invited to express their views, with entire freedom, as to the success or failure of Normal graduates, and the excellences or deficiencies of their modes of instruction and influence. The replies were very satisfactory. Of the one hundred and seventeen towns where Normal graduates had been employed, the committees of only eleven were opposed to them, while one hundred and six expressed themselves favorably. Since that time, the large annual appropriations for the Normal School have been made without opposition. A fifth Normal School is supported by the city of Boston on a still more liberal scale. There is abundant evidence that the Normal Schools have been steadily advancing in public appreciation. This popular verdict in Massachusetts is said to be most clear and emphatic in those towns where the graduates have been most frequently employed, and where the people have become most conversant with their influence on the public schools.

The State of New York established one Normal School in 1844, and two years ago a second school, and has now provided very liberally for six State Normal Schools. Maine has one Normal School, and has provided for a second. Vermont has recently established three, and nearly all of the Middle and Western States are now maintaining Normal Schools. Almost all the leading educational men of New England and the Middle and Western States, seem to be of one mind as to the usefulness of Normal Schools.

The Connecticut Normal School was started avowedly as an experiment, for five years. It has encountered much

opposition. The question of its continuance has been repeatedly discussed by the General Assembly. From the outset it has found some earnest opponents. The changes made by the Legislature of 1865 have very naturally occasioned some disturbance, and, together with the high price of board, temporarily reduced the number in attendance to thirty-four. But the friends of the school believe it was never in a better condition than to-day. The standard of admission has been advanced. A pledge to teach has been more rigidly insisted upon as the condition of admission. The Principal says that, during the last year, "it was found that a number of pupils had no settled purpose of engaging in the business of teaching. Measures were adopted to cause the withdrawal of all such from the School. The pupils were made to understand that they had no right to enjoy the privileges of the Institution for a single day, without a full determination to make teaching a permanent business." A decided improvement has been apparent during the present term. The School wears a busier aspect. It is believed there are none with us who do not mean to make a business of teaching. The Principal says also, "it would appear that there had been too much laxity in the admission of pupils. The standard of qualifications has apparently been too low. The policy of admitting all who apply, in order to swell the numbers, is suicidal. It may fill the seats for a year or two, but it, by and by, recoils with destructive effect. When the standard of scholarship is lowered, the Institution loses its tone, and will surely suffer in its reputation. It is no longer attractive. Permanent prosperity is sacrificed to a very shallow and short-lived success. What we want is not numbers without character. Better have a dozen pupils of a really superior scholarship and character, than a hundred of superficial attainments, destitute of earnestness and thoroughness. With high excellence, numbers will come. Make the Institution a model one, and our intelligent young

men and ladies will flock to it from every part of the State."

The course of study continues through *three* years, while in Massachusetts it is but two years, and, until eighteen months since, but one year and a half. The length of the course is one explanation of the difference between the number of graduates, and those who have been only members of the school, as stated above. The average number annually graduated is fifteen. The class which graduated last week, numbers fourteen. The number of graduates, reported by the School Visitors of the several towns and cities, as teaching in this State, during the last school year, is one hundred and twenty-three. The number of different school rooms in the State is 2,051, so that the Normal School has sent out, from a longer or shorter course, 298 more than enough to supply one teacher to every school house in the State. Had the school done no more than to thoroughly train the 259 graduates, the State would be well compensated for the money expended. Add to this the still wider influence of the large number who have had the advantages of a partial course, and who can compute the influence this school has exerted? We have reason to think that some persons, who have been connected with the school for only a short period, have afterwards gone among those who did not closely investigate their claim to its honors; and professed to hold a full diploma, while their merits, as teachers, fell far short of the rank to which a diploma should entitle them. We recommend, therefore, that hereafter the government of the school should issue to every person who may have been connected with the school, either for a long or a short time, a *graduated certificate*, which may indicate the precise degree of proficiency as a teacher, which the pupil may have attained.

The first advocate of Normal Schools in this country was Prof. Olmstead of Yale College, who had been a teacher in the common schools of Connecticut, and who, in a

public address in 1816, said, "the secret of the great defect in our school education is the ignorance and incompetency of the teachers, and the only remedy is a *Seminary for Teachers*." His plan involved a two years' course, admission upon examination and free tuition. All subsequent experiences has shown that the most direct way to improve the schools is to train up better teachers. We might as well abolish the Reform School, as to abolish that Normal system, which tends so directly to lessen both the necessity and cost of prisons and reform schools.

The distinct object of the Normal School is the preparation of teachers for their profession, to train them in the best *methods of instruction and government*. Experience has proved that special preparation is a pre-requisite to successful teaching. It is a great mistake to suppose that the district school teacher needs no special training for the work. The teacher of the youngest children in school has the most difficult and important work. In education the first steps are the hardest, and yet the most decisive, as to the whole future of the child. Few, without special training, will get the art of simplifying difficult things to the comprehension of little children. Few apprehend the difficulties of successful teaching, such teaching as shall make our common schools the best in the community, good enough for the children of the rich, and then none too good for the poor. No one agency can accomplish so much for the thrift, prosperity and morality of our State as competent teaching.

If the Normal School should be discontinued for the present year, it cannot be supposed that Connecticut will long linger in the rear, while other States, Southward as well as North, are giving professional training to their teachers. For, by the aid of the Peabody Fund and other agencies, Normal schools are now being organized in the Southern States. Yet, if this school is discontinued, the large buildings and property at New Britain, originally given by individuals, will revert to the donors, together

with all which the State has added, to improve this very valuable property.

As the result of our examination, inquiries, and deliberations, we respectfully recommend, that the resolution should be rejected.

First. Because the Legislature has recently changed the administration of the Normal School, by substituting for the Board of Trustees a State Board of Education; and this latter Board is endeavoring, in good faith, to introduce those improvements which the Legislature and people of the State have called for.

Secondly. Because the instruction now given in the Normal School is of a solid and useful character, the teachers are thorough and devoted, and the scholars are fitting themselves to be of great service to the common schools of the State.

Thirdly. Because the injurious influence of former disagreements, in respect to the management of the Normal School, has now nearly disappeared, and the excellent spirit of the Principal of the School and of the Secretary of the State Board of Education, is awakening, through the State, new zeal and earnestness among the friends of public instruction.

Fourthly. Because it is a cause of constant complaint among local school officers, both in cities and rural districts, that there are not enough properly qualified teachers to be obtained within the State.

Fifthly. Because even those who receive an imperfect training in the Normal School, commonly show a much greater fitness for the teacher's work than those who are simply taught in high schools and academies.

Sixthly. Because the influence of Normal schools elsewhere, in this and other countries, has uniformly been good, in promoting public education.

Seventhly. Because less than one year of trial has been given to the new arrangements at the Normal School, and

the effect of the harmonious activity of superior teachers, definite qualifications for admission, improved courses of study, modified relations with the schools of New Britain, and rigid regulations, in respect to attendance and study, is as yet but partially seen.

Under these circumstances, the Committee are of opinion that the State Board of Education deserve the hearty co-operation of the General Assembly and people of the State, in their endeavor to make the Normal School, in all respects, an institution honorable and useful to the State, and practically efficient in training teachers for their responsible work.

W. H. CHANDLER,

Chairman of Senate.

H. M. CLEVELAND,

Chairman of House.

J. O. PETTIBONE,

J. H. LINSLEY,

W. S. STANDISH,

J. D. FERGUSON,

R. DEMING,

D. P. PLATTS,

E. P. KELLOGG.

REPORT

OF THE

JOINT SELECT COMMITTEE

ON

FISHERIES.

Printed by order of the Legislature.

HARTFORD:

CASE, LOCKWOOD AND COMPANY, PRINTERS.

1867.



REPORT.

GENERAL ASSEMBLY,
MAY SESSION, 1867.

The Joint Select Committee on Fisheries beg leave to submit the following Report :

That after having had in consideration numerous petitions and remonstrances relating to the general fishing interest of the State, they are of the opinion that, in order to promote the greatest good to parties directly interested, the accompanying acts should become a part of the general law relative to Fisheries. The fishing interest is one of vast importance, and adds very much to the general welfare and prosperity of the State. The Committee, after having given all the parties interested a full hearing, are unanimous in the opinion that a proper amount of legislation, properly directed, may add to and assist in producing general results which shall become of great pecuniary advantage to both private individuals and the State at large.

The Committee are of the opinion that great and beneficial results may be derived by the fishermen of our State, by the enactment of new laws to operate in connection with the laws now standing upon the Statute Book of the State. We find, on investigation, that a large amount of capital is invested in the fishing business of the State, whereby employment is given to a large number of our citizens who need and should receive proper protection from State legislation. Your Committee have, therefore, exercised the precaution not to prepare any

acts or advance ideas that may in any way result in disaster to the fishing interest. We have desired to introduce nothing in relation to fisheries but what shall be made practical and result in pecuniary advantage to the fishermen, and a general advantage to the State. The Committee are of the opinion that a strict enforcement of a law requiring that all nets shall be taken from the river on Saturday evenings of each week at sunset, and not to resume fishing again until sunrise of the following Monday, is of great importance, and that beneficial results may be produced therefrom in the reproduction of shad in our river. We would, therefore, recommend that the Commissioners be empowered to take cognizance of all violations of said act, and cause any and all violators thereof to be punished as the law directs.

The Committee are of the opinion that pound or set-net fishing is not as disastrous and destructive to the shad fisheries as many have supposed, and, in fact, find on investigation that pounds are not particular obstacles in the way of fish making their passage in at the entrance of the river. We find the pounds all located to the westward of the mouth of the river, the nearest one being more than one mile from its junction with Long Island Sound, and all of them so near the beach as to offer no material obstruction to fish that would naturally find an entrance to our river.

The Committee, after procuring the strongest testimony of scientific and practical men who are thoroughly informed in reference to the great fishing interest of the State, were unanimous in the opinion that very much may be done through the Commissioners to advance our fishing interest, which is an important one as it is now conducted. Still we feel it may become of much greater importance. From testimony given by Professor Agassiz and Commissioners from the States of Massachusetts, Vermont and New Hampshire—likewise by practical fishermen of our own State, and after having had placed before the Committee a number of scientific experiments in reproducing fish by artificial means, the Committee are of the opinion that the natural and artificial production of fish may be carried to an extent whereby our

rivers and smaller streams may be made to abound with both shad and salmon.

The committee are also of the opinion that concerted action of our own State, through commissioners appointed by the Governor, to act with commissioners appointed by the State of Massachusetts, Vermont and New Hampshire, will tend to advance our fishing interest to one of much greater importance. It will not only become a greater source of profit to those of our citizens who are engaged in the business, but may be made a source of revenue to the State. The committee are also of the opinion that artificial barriers erected within the jurisdiction of the State of Massachusetts, have been destructive to our salmon fisheries, and while they have not wholly destroyed our shad fisheries, they have been a serious obstruction to the natural propagation and the restocking of our Connecticut river with shad and salmon.

Your committee recommend the appointment of three commissioners by the Governor, whose duty it shall be to look after all matters pertaining to the general welfare and interest of the State in connection with our fisheries. Said commissioners to act in common with commissioners from Massachusetts, Vermont and New Hampshire, in all matters that shall be deemed important to the restocking, by natural or artificial means, our river with any and all kinds of fish that naturally take to the water of our river; and also that said commissioners be authorized to expend for and in behalf of the State, a pro rata amount with other States mentioned in the report, for the purpose of restocking, either naturally or artificially, our river with salmon and shad, or other fish that may directly enhance the fishing interests of the State.

Your committee are of the opinion that before the commissioners shall appropriate, to any extent, the funds of the State for the advancement of this great interest, that the States of Massachusetts, Vermont and New Hampshire shall first remove all artificial barriers to the natural propagation of fish, that are erected within the jurisdiction of those States, by erecting suitable fish-ways whereby fish may be allowed to pass dams and all other obstructions calculated to retard the

progress of fish which would naturally find their way to the head waters of our river to deposit their eggs. Whenever the commissioners become satisfied that such obstructions have been removed or provided for, then said commissioners shall be at liberty to pay proportionally the States' share of any judicious expenditures which may arise for the restocking of the river with fish.

All of which is respectfully submitted.

HORACE JOHNSON,

Chairman on the part of the Senate.

MAJORITY REPORT

OF THE

COMMITTEE

ON THE

SALE OF SPIRITUOUS LIQUORS.

Printed by Order of the Legislature.

HARTFORD:
CASE, LOCKWOOD & COMPANY.
1867.

REPORT.

GENERAL ASSEMBLY,
May Session, 1867.

THE undersigned, a majority of the Joint Select Committee on the sale of Spirituous Liquors, to whom were referred the petitions of divers persons for the repeal of the law prohibiting the sale of intoxicating liquors, and for the enactment of a just and salutary license law, having had said petitions under consideration, and heard the testimony of various witnesses relative thereto, beg leave to report :

That the course of legislation in this State, for a long series of years, was that of regulation, rather than of prohibition, and that the sale of intoxicating liquors as a beverage has never been regarded as a crime or a sin, in and of itself, but only as an evil under some conditions, and, therefore, legislation should be directed to confining the sale within certain limits, and restricting it to certain persons and places ; and that even the so-called " Maine Law " allows the sale of liquor by specific town agents for certain special purposes.

The majority of your Committee also find, that while the present prohibitory law was, doubtless, designed to stop the growth of drunkenness and to prevent the sale of intoxicating liquors, it has utterly failed to accomplish either of these results ; that, either because public opinion has

failed to sustain the law, or for the reason that prohibitory legislation is contrary to the spirit of the age, and distasteful to the people of this State, it is certain that in all, except a very small portion of the State, the law has been for years a dead letter, and there has been, instead of a regulated traffic in ardent spirits, a practical unlicensed free trade in spirituous liquors, and an open, constant and unpunished violation of the law. That while it is true that within the past few months there have been efforts made by certain secret organizations, with paid detectives, who purchased liquors and then informed against the seller, to enforce the law, and that these prosecutions have in some instances been successful, it remains to be seen whether, in many of these cases, a jury will convict upon such testimony, especially as it was the almost universal testimony that prosecutions for this offense were more difficult to sustain than any other.

It also appeared to the undersigned, that a large revenue might be secured to the State from this source, and that this ought not to be neglected, considering the pecuniary burdens which the State is now bearing. That this source of revenue is recognized by every government as one peculiarly proper to contribute toward relieving the weight of taxation, and is one which the present national system of finance both permits and licenses, and from which it draws no inconsiderable revenue. It seemed, therefore, that the government of the United States ought not to have the benefit of an income from citizens of this State, while our State treasury was deprived of what its citizens would be ready to pay for like privileges under a State law, and that if it was right for the Congress of the United States to authorize the issuing of licenses for this traffic, it might be well for the State of Connecticut to do the same.

The undersigned are of opinion that a stringent and guarded license law, while it would produce a revenue to the State, it would also serve to regulate the traffic and

bring it into the hands of a more respectable class of dealers ; would close altogether the haunts of the more vicious and depraved, and would be better for the peace and good morals of the community, than the present law, which, while it pretends to be prohibitory, is in practice directly the opposite, since it is disregarded with impunity and violated without fear of punishment.

In view of all these facts, the undersigned beg leave to recommend the repeal of the prohibitory law and the passage of the accompanying bill.

All of which is respectfully submitted.

E. A. CONVERSE,
R. E. ENSIGN,
A. T. HOTCHKISS,
CHARLES R. VIETS,
C. J. THOMPSON.

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MINORITY REPORT

OF THE

JOINT SELECT COMMITTEE

ON THE

SALE OF LIQUORS.

Printed by order of the Legislature.

HARTFORD:

CASE, LOCKWOOD AND COMPANY, PRINTERS

1867.



REPORT.

GENERAL ASSEMBLY, }
May Session, A. D. 1867. }

THE undersigned, being a minority of the Joint Select Committee on the Sale of Liquors, to whom were referred sundry bills and petitions respecting the sale of intoxicating liquors, beg leave to report—

That after a full hearing of the advocates of a license law, and the friends of the present prohibitory law, they have come to the following conclusions :

1st. That the principle of *prohibition* in respect to the sale of intoxicating liquors as a beverage, is right.

2d. That the enforcement of the present law has uniformly been attended with the happiest results in diminishing intemperance and crime in the State : that in many portions of the State this law has always been enforced, while nearly all recent attempts to enforce the law in different parts of the State, have been countenanced and sustained by all the friends of law and good government, irrespective of party.

3d. That while many of our citizens desire the enactment of a more stringent prohibitory law, embodying the constabulary system of one of our sister states, and others believe it wise to break down some of the barriers already existing against the unrestricted sale of intoxicating liquors as a bev-

erage, the undersigned deem it best to make still further trial of the present law, which has proved in many towns of the State to have been from the first in the highest degree salutary, and which we believe will be found to be equally salutary in every portion of the State.

4th. That in order to secure the most beneficial results from the present prohibitory law, we do not deem it either necessary or desirable to make use of any other instrumentalities than such as are ordinarily employed to enforce any other penal law.

HENRY M. CLEVELAND,
A. N. BENEDICT,
A. J. HURD,
J. D. GALLUP 2D.

MAJORITY REPORT

OF THE

JOINT STANDING COMMITTEE ON INCORPORATIONS,

ON THE

Petition of J. B. Sargent and Others.

Printed by Order of the Legislature.

HARTFORD:

PRESS OF CASE, LOCKWOOD AND COMPANY.

1867.

REPORT.

GENERAL ASSEMBLY,
May Session, A. D. 1867.

The Joint Standing Committee on Incorporations, to whom was referred the petition of J. B. Sargent and all other petitions in aid of and remonstrances against the prayer thereof amending the charter of the Fair Haven Water Company, having reported in favor of granting the prayer of the petition, and having submitted a bill in form, beg leave to submit the following statements of facts, found by the Committee.

The Fair Haven Water Company was chartered in 1861, for the purpose of supplying the village of Fair Haven with pure water. Those asking for the charter turned their attention to Saltonstall Lake and Farm River and other sources for water, all lying East of the City of New Haven, and did not then fully comprehend the expense of raising water by artificial means. The New Haven Water Company through its counsel procured a provision to be inserted in the Act of Incorporation of Fair Haven Water Company, prohibiting the "laying any pipes in the streets or highways in the City of New Haven." After looking over all sources of supply, the Fair Haven Water Company found that pure water with sufficient head and abundant in quantity, could be found in the locality of Maltby Park, and also of West Rock, and could be procured at far less expense than from any other source.

To demonstrate the fact that an abundant supply of water could be obtained, the company constructed Reservoirs No. one and two on the Derby road now known as Maltby Park and the Reservoir known as Wintergreen Lake on West Rock. Each of these Reservoirs actually built filled with great rapidity and forever set at rest all doubt as to the ability of the Company to build other projected Reservoirs that shall cover 463 acres, and will hold a quantity of water sufficient to supply daily for one year, 5,500,000 gallons, without the addition of a drop after the Lakes have once filled. With the aid of streams, and springs this quantity will be increased to over sixteen millions of gallons daily.

So abundant is the supply and so pure the source, that the remonstrants neither doubt the quality nor dispute the quantity of water.

Your Committee find that the Village of Fair Haven cannot be supplied from any proper source with sufficient natural head, without permission to pass through the City of New Haven. That the Village of Westville, part of the town of New Haven lies near to the Lakes of the Fair Haven Water Company and can be easily supplied from said Lakes. That in said Villages the wells are very deep, that it has fourteen Factories, some of them of the larger size, and that at present the Village has no adequate protection against fire; Between these two Villages lies the City of New Haven with its 50,000 inhabitants and 90 miles of streets.

That the Fair Haven Company can from its sources supply the whole town of New Haven with pure water for domestic use and with sufficient head for manufacturing and fire purposes.

That the water can be delivered in New Haven with a head from 200 to 240 feet.

That they could furnish for manufacturing purposes near 1500 horse power the year through, and that such power would be worth one hundred dollars per horse power. That the demand for such power by the use of water motors, where the same can be used at all times and for light work is very

great. That with this head steam boilers could be filled without the aid of force pumps thereby saving power.

That each of the fire Hydrants in the City of New Haven, (and there are 300 to 400,) would in power be fully equal to a steam fire engine, and in many respects better than any steam fire engine could do. The power would be always ready, always steady and effective. That at present the city of New Haven has four steam fire engines, only three of which are in use, and that the annual cost of the fire department to the City of New Haven aside from the original cost of the engines is \$3,000. That the city of New Haven pays the New Haven Water Company \$9,000 a year for water to supply these engines. That the fire Hydrants of the city, with the head of the Fair Haven Water Company, would be a great and added protection against fire.

The fires of New Haven have greatly increased within the last few years, and during the year 1866, near \$400,000 worth of property was destroyed by fire. At one fire over thirty buildings were destroyed.

This your committee believe could not have been, if an adequate supply of water with sufficient head to every Hydrant had existed.

To secure the advantages to be derived from this water, nearly 4000 persons have preferred their petition to this Legislature, asking that the Fair Haven Water Company may introduce its water into the town and city of New Haven.

The application is resisted by the New Haven Water Company.

This company was chartered in 1849. No stock was taken or capital paid in until the year 1859.

The water from this company was introduced into a portion of the city January 1st 1862, from Mill River by means of a dam at Whitneyville.

From this pond in Mill River the water is elevated 95 feet to a Reservoir by means of a force pump, and from thence distributed. This gives a head at tide water in the city of New Haven of about 125 feet.

Mill River is used for manufacturing purposes, and on its banks are many manufacturing establishments, and all the usual filth from those establishments has heretofore been permitted to flow into this water.

One establishment in Hamden, just before the commencement of this hearing, boarded up, but did not destroy or remove the existing privies over the water, but erected some on the adjoining land. The waters of this river are collected from cultivated fields and farm lands, and are more or less affected by decaying vegetable matter.

The Whitneyville Pond, from which water is pumped, extends from one to two miles up in the town of Hamden. A portion of this pond is of deep mud; and as the water runs lower in the summer season, and covers these mud flats with but a thin sheet of water, the action of the sun upon this vegetable matter tends to render the water offensive. During the summer of 1865 the water became very impure.

The dam on this river collects all the impurity—mud and filth—that finds its way into the river; and from year to year, the accumulations will increase, the pond grow more shallow, and the action of the sun upon this mud and filth more apparent.

To avoid a like result, and for other reasons, the city of Philadelphia contemplate abandoning the Fairmount Water Works, and to procure water from the Perkiomen. See Report of 1866, pages 6 and 7.

To raise this water it takes from five to six gallons to furnish the power to raise one gallon for the use of the city when the Whitneyville Pond is full; but so soon as the head of this pond is drawn down, as it may be by Eli Whitney under his contract with the New Haven Water Company, it will take from six to ten gallons to raise one gallon, varying according to the head of water in the pond.

In 1853, the city of New Haven, by an able committee, assisted by an experienced engineer, made a very careful examination and elaborate report upon this same Mill River.

They say that with a "fall of 34 feet you could raise

1,900,000 gallons per day to an elevation of $132\frac{1}{2}$ feet above mean tide, or over 2,000,000, as high as we shall probably require, say from 120 to 125 feet." Report of 1853, page 16.

The present dam at Whitneyville is but 30 feet high, and is required to elevate the water to 125 feet above mean tide. It will easily be seen that the supply of the present works must fall much short of the two millions of gallons. The population of New Haven at that time was 25,000—it is to-day about 50,000 inhabitants.

The same report made an estimate of the amount of water necessary for the inhabitants of New Haven, and with its then population it required 1,500,000 gallons. For 50,000 inhabitants, they estimated the requirements at 3,000,000 gallons daily. Report, page 18.

They came to the result, that when the population of the city should exceed 30,000 or 40,000 inhabitants, it would be necessary to "add steam power in the driest seasons," in order to obtain a supply for New Haven from this source.

A few facts from experience with the present Water Works demonstrate the correctness of these conclusions.

There are, in the town of New Haven, as shown from the Controller's Office by Grand List of 1866—

Dwelling Houses, - - - - -	4,941
Store and Mills, - - - - -	826

By the last report of New Haven Water Company, they supply but 903 dwellings, leaving 4,038 unsupplied. They supply 226 stores and mills, leaving 600 unsupplied, and they supply but 21 offices in all New Haven. They furnish water for only four water motors,; and with less consumption in 1865, the water became so low in the Whitneyville Pond, that the pump nearly ceased action, and would not have moved another day, except for a timely shower.

They have but one 16-inch main to supply the city of New Haven, and with a full head of water and their present limited consumption, the opening of a hydrant at the corner of State and Chapel streets will take the power from and stop one of the motors now in use. The daily average consumption now so reduces the power of the water, that street wash-

ers in various parts of the city will at times scarcely reach the second story windows.

It was proved to the committee that in a factory situated only six feet above tide water, the upper story of which was 50 feet high, the force of water is so weak, that the proprietors, for safety, have deemed it prudent to construct tanks, and place small hand engines in the upper story to play from such tanks in case of fire.

The head is insufficient for the use of fire hydrants in a great part of the city, except in the earliest stages of a fire, and on the lower stories. The power requisite for effective fire purposes is wanting.

They cannot supply steam boilers without the aid of force pumps.

The New Haven Water Company was chartered to supply the city of New Haven with water, and might have selected sources where pure water, with an ample supply and a sufficient head, could have been obtained without machinery for elevating the same. But on the 13th of June, 1859, before a dollar of stock had been paid into the New Haven Water Company, Eli Whitney, one of the present directors of the N. H. Water Company, having a power at Whitneyville with a head at high water of only six feet, was desirous to raise his dam so as to furnish a more adequate power, and to get from the New Haven Water Company pay for so doing, made a contract with one of the Directors of that company by which he promised that Director, if he would cause a contract to be completed ("the preliminaries of which was then pending") by which Whitney should sell certain rights to the New Haven Water Company, and also construct a reservoir, and bring the Water into the city of New Haven, he would give to such Director all he should get over the sum of \$320,000, provided the excess should not exceed \$30,000—one-half payable in bonds, and one-half in stock of the New Haven Water Company. Mr. Whitney, on the 14th day of July, 1859, made the contract referred to for the consideration of \$320,000, and subsequently paid over the \$30,000 in stock and bonds to the Director pursuant to his contract.

Mr. Whitney testified that he "presumed some of the other Directors received some of the \$30,000 stock and bonds."

The total amount of the stock of the New Haven Water Company now subscribed is \$250,000, and it has issued \$200,000 bonds.

For the last three years it has had no means by which to extend its water pipes to unsupplied parts of the city, and the Company directed their secretary to inform all who should apply for the extension of their pipes, that they would be extended on condition that those applying would furnish the means, and take stock equal to the cost of the extension, thereby forcing people to take their stock, or be deprived of water.

The New Haven Water Company admit the necessity of another main from their Reservoir into the city, and say they expect to lay such a pipe, and yet they have no capital with which to do it.

Any person who shall take stock, or furnish means to this Company, must put the same in against the \$30,000 of squandered capital, and the further large sum received by Eli Whitney.

By this contract with the New Haven Water Company Eli Whitney obtained a power with a thirty feet head, and the right to use it jointly with the old company until the head should run down to twenty-eight feet, and on this power he has built four large factories. He also received the sum of \$151,000 over and above the costs of constructing the Water Works. He to-day owns \$90,000 of the bonds and \$60,000 of the stock—one-third of the entire Company.

The New Haven Water Company have insisted before your committee that the prayer of the petition should not be granted for two reasons not heretofore alluded to.

They say it is a violation of a franchise, of a vested right granted to them by the State, and yet your committee find that since the charter of the Fair Haven Water Company, giving it the right to supply the village of Fair Haven, and while the New Haven Water Company prohibited the Fair Haven Water Company from crossing the city to supply the

village of Fair Haven, it obtained power to extend its pipes into Fair Haven, and distribute water on the ground granted to the Fair Haven Water Company, and has laid nearly four miles of pipe in that village.

When only about two miles of this pipe had been laid, the Company, in its Annual Report of 1863, page 15, give the reason for its action. The report says :

“ The question has been asked, why carry the pipes to Fair Haven, when many streets in the city are yet unsupplied ? Our answer is, the parties interested subscribed for stock for that purpose, and advanced the money, furnishing means nearly sufficient to lay the pipes ; *and it also effectually disposed of the plea* that water from *any* other source is wanted in that thriving village.”

As to the injury that another Company may work to the old Company, it is apparent that if the Fair Haven Water Company cannot furnish purer water, nor cheaper, nor from a more desirable head, it will stand a poor chance in competition with a Company which already has its pipes laid through the most populous portions of the city. Those who have already plumbed their buildings, and connected to the mains of the old Company, would not change, unless the new Company can offer advantages.

The unsupplied dwellings, stores, and offices, together with the large extent of ground in the upper part of the city, on which are being built the finer residences, and the peculiarity of the soil of that portion of the city, presents a demand for a larger use of water.

In the city of Hartford there are but 3,433 dwellings, but the last report of the Hartford Water Works shows that they supply 5,593 families, and while the city reports only 513 mills and stores, the Water Commissioners' Report shows 510 supplied with water.

If there should be a like use of water in New Haven, it will be seen that the income would be very large.

The last report of the New Haven Water Company shows an income for water rents, in 1866, of \$36,039.

Less than one-third of the residents on the line of the present pipes of the New Haven Water Company take the

water at present, but the Company shows an increase from year to year.

The remaining reason assigned by the remonstrants is, that the citizens of New Haven do not require any other supply of water than that furnished by the old Company. That more than seven-eighths of the people are opposed to the introduction of water by the new Company.

About 3,000 of the petitioners reside in New Haven city, and ask for this water.

The subject has been agitated by the City Common Council, and decided adverse. It has been acted upon in town meeting, and in the annual city meeting, and at both, resolutions have been passed in favor of the admission of the water of the new Company. Town and city officials both petition and remonstrate.

The people of the town have an interest in this matter. In one event, the streets are to be disturbed for the time being. In the other, the people of the city are to be deprived of any advantages that the new Company might give, and forever confined to the old Company.

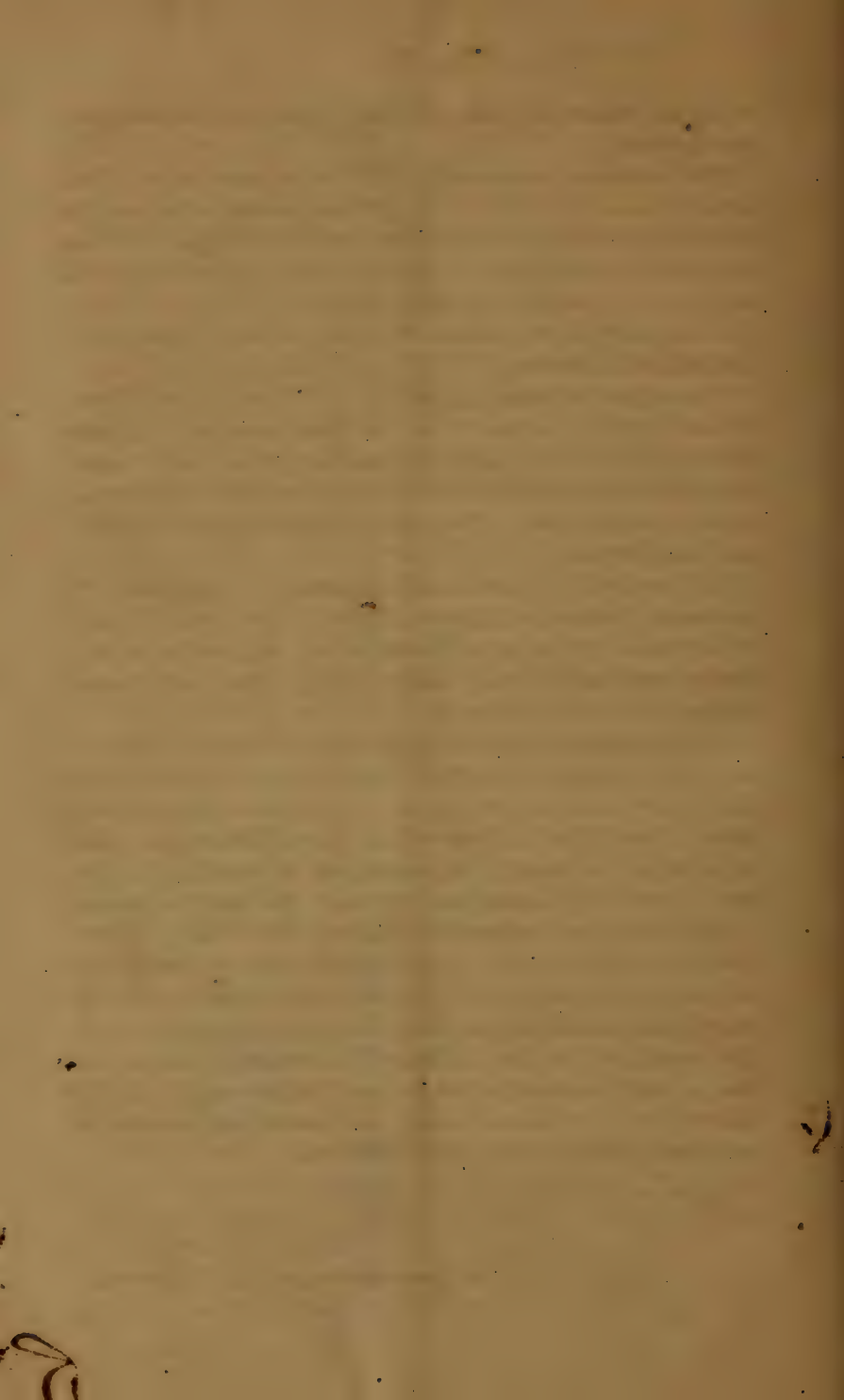
If the people of New Haven do not want water from the sources of supply of the Fair Haven Water Company, your committee is adverse to giving the right to disturb their streets: but if the majority of the people desire this additional supply of water, your committee is unwilling to say the request of the numerous petitioners shall not be granted.

They therefore recommend that the Fair Haven Water Company shall have the right to conduct water through the city of New Haven to Fair Haven, where the Company has the right to distribute the same. They also recommend that the question of the distribution of water in the town of New Haven shall be submitted to the vote of the people of New Haven for their determination, and hence recommend the passage of the accompanying bill in form.

All of which is respectfully submitted,

AMOS J. GALLUP,

Chairman on the part of the Senate.



19
MINORITY REPORT

OF THE

JOINT STANDING COMMITTEE ON INCORPORATIONS,

ON THE

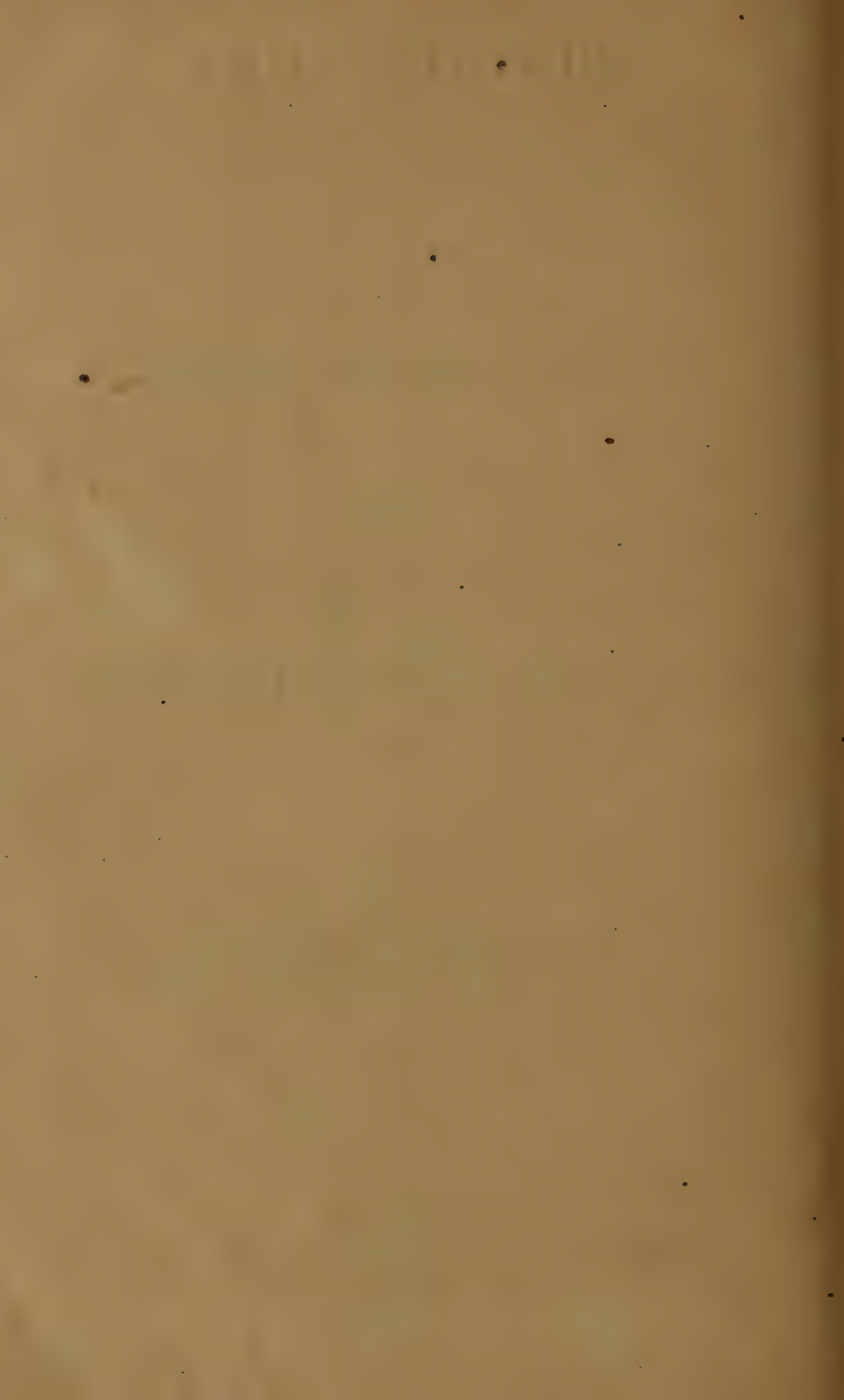
Petition of J. B. Sargent and Others.

Printed by Order of the Legislature.

HARTFORD:

PRESS OF CASE, LOCKWOOD AND COMPANY.

1867.



REPORT.

THE undersigned, members of the Committee on Incorporations, to whom was referred the petition of J. B. Sargent and others for an amendment to the charter of the Fair Haven Water Company, so that the pipes of that company can be introduced into the city of New Haven, beg leave to report, that in their judgment the prayer of said petition ought not to be granted for the following reasons :

FIRST. Another water company in that city is entirely unnecessary. The water supply of a city should be under the control of one responsible head. If that supply is left to private enterprise and can be furnished in ample quantity, of good quality, and at reasonable rates by a single company, it is manifest that the creation of another company is not only unnecessary but must operate to the disadvantage of the individual consumer as well as the general public. The double cost must be paid for, and the increased annoyance resulting from the necessary breaking up of the public streets, must be submitted to without any compensating advantage. Therefore it is that there is no instance of a community where two water companies are allowed to lay down pipes and carry on their operations within the same territory. In every well-governed city the middle of the street should be reserved for the public sewerage, with room for the water and gas pipes on either side, and in most of the streets of all cities, (and this is certainly so of the city of New Haven,) there is not more room than is desirable for a single length of water or gas main pipe on either side of the public sewer.

The City of New Haven by the unanimous vote of its Mayor, Aldermen and Common Council, (comprising the Court of Common Council, a body of thirty-one members, elected by the freemen of the six wards into which the city is divided, and who are charged with the care of the public streets as well as the public interests generally,) has remonstrated against the granting the prayer of this petition.

The City of New Haven is already supplied with water from Mill River by the New Haven Water Company—a private company organized for the purpose in 1859, after the city had decided by a popular vote not to undertake the work in its corporate capacity.

The undersigned do not understand that there is any difference of opinion among the members of the Committee on this point, namely, that since the introduction of water in 1862 by the New Haven Water Company, that company has done and is now doing every thing that could reasonably be required of them in fulfillment of the purposes of their incorporation.

No complaint whatever from any source whatever has been made that their rates are not reasonable and just.

Their supply of water is abundant. The authorities of New Haven, especially those having the Fire Department of the city in charge, bear unqualified testimony to this. And it is undisputed that their present supply, if ever likely to be insufficient, can be increased to any necessary extent.

Its quality is as good as that of any city in the Union. There is no city in which occasional disturbances in the quality of their water are not manifested in the early stages of their works. There has been less of this in New Haven than in cities generally. The well-water of New Haven is generally of very superior quality, and of course has the advantage in respect of coolness in the summer season over any river water. But the river water is used for drinking purposes in all the public hotels and extensively in private families throughout the city, to the exclusion of the wells.

The extent of pipe laid down by the New Haven Water Company is greater than has been laid down in any city of the

same size within the same period of time. The company has been only five years in operation, but it has already laid down thirty-five miles of pipe, and is under contract with the city to lay down twelve additional miles before November 1868. The City of Hartford introduced water, (at the expense of the city,) in 1855. Within the first five years they laid down twenty-seven miles of pipe, and their present extent is thirty-seven miles. And, in this connection, it should be considered that the demand for water in New Haven for domestic uses is much less than in Hartford, owing to the superiority of the well-water in New Haven, and also in a great measure to the fact that the Hartford water works are city works, and their expense must be paid for by the citizen as a tax payer if not as a water consumer, and therefore there is a general readiness to pay in the latter capacity.

But on this point it is enough to say that as recently as February, 1867, a committee of the citizens of New Haven, consisting of Joseph E. Sheffield, Ex-Mayor Welch and Ex-Mayor Tyler, were appointed by the Court of Common Council, in conjunction with the present Mayor and City Attorney, to report whether any, and if any, what further supply of water was required in the city for public purposes. That committee unanimously reported that the water company had laid down pipes in all streets in which there was any reasonable demand on the part of consumers, to justify their doing so, but that it was expedient for the city to engage them to lay down additional pipe in certain localities where the private consumption did not justify it but where it was desirable to have the water for fire purposes. Upon that recommendation, by the unanimous vote of the Common Council, a contract for the purpose indicated was made by the city with the water company. No more conclusive evidence could be afforded than this that the city of New Haven is now adequately and satisfactorily to itself supplied with water by the New Haven Water Company.

SECOND. But if any reasonable complaint could be made of the present company in these respects the undersigned are very certain that there is nothing in the character of the pro-

posed ponds of stored water of the so-called Fair Haven Water Company to justify the supposition that such complaint would be remedied by granting the prayer of the petitioner.

It is claimed that the additional head to be obtained at these ponds would be of great advantage to the city for fire purposes, enabling the city to dispense with its steam engines and thus save a large expense.

The recent disastrous fire at Tariffville might have been prevented by a steam fire engine. In the opinion of the undersigned it would be supreme folly for a city under any circumstances whatever, to dispense with a fire department provided with these powerful auxiliaries.

The head of the New Haven Water Works at tide water is 128 feet. There are few cities in the country which have a higher practical head of water than this gives to the city of New Haven. It is considerably above that obtainable in New York, Boston or Philadelphia. With the single exception of the ridge on which the reservoir is located (on which there are only three dwellings) there is no elevation in the city of New Haven at which there is not a head of 83 feet, being 13 feet greater than the head attainable at the State House yard in Hartford, from the present reservoir in that city. And it is well known that in this city (Hartford) there are many settled localities which, owing to their elevation, are beyond the reach of their present head of 125 feet, at tide water. There is no instances of this in New Haven.

But it should be conclusive upon this point that the city of New Haven experiences no difficulty in this respect and asks for no change. The experienced Chief Engineer of the Fire Department of the City of New Haven and the Board of Fire Commissioners who have under their charge the Fire Department of that city declare without a dissenting voice that the present head of water in New Haven is all sufficient for their purposes and that no advantage to be derived from any additional head would counterbalance the disadvantages likely to result therefrom. And this judgment is confirmed by the unanimous vote of the Court of Common Council before referred to.

It has also been claimed that with an increased head of water, the introduction of water motors for manufacturing purposes would become general. It has never been understood to be the purpose of any water-works, whether of a private company or a city, to furnish the public with motive power. It cannot be prudently done to any considerable extent, not because of any want of sufficient head, but because the consumption of water must be so great as not to justify any company having in charge the general supply of a city in engaging in such a business. In a city, moreover, provision by way of sewerage would be indispensable for the waste water, and in New Haven but a small portion of the principal streets is as yet sewered. There are two or three motors now supplied by the New Haven Water Company, but there is no city in which the general use of water for that purpose is allowed. In the borough of New Britain, where there is a large store of water with a great head, the attempt has been made but abandoned.

THIRD. The action proposed by a majority of the Committee is not only uncalled for by any public necessity, but its gross injustice to the New Haven Water Company seems too manifest to require comment.

That Company is composed of about 300 stockholders, residents of New Haven, holding in the aggregate two hundred and fifty-five thousand dollars of stock, par value. Bonds of the Company to the amount of two hundred thousand dollars are also held in that city. The Company was organized with great difficulty. A project for the introduction of water by the city had been defeated by popular vote, on the ground that there was not sufficient demand for water in the city to justify it, and that the works would become a burden to the public treasury. A hostility to the introduction of water in any way was also engendered in some quarters by that controversy, and was a serious drawback to the organization of the proposed Company. Under these circumstances, the subscribers to the stock had no reasonable expectation of a return for their investment at any early day. But while,

undoubtedly, actuated to a large extent in their subscriptions by a desire to contribute to what they regarded as a public spirited enterprize for the public good, they certainly had a right to expect that they would ultimately be allowed to receive, without interference from the State, at least, some pecuniary return from the business they were creating. With their means thus subscribed and invested, works were constructed, which in extent, durability, economy of construction and general adaptation to the purposes of their construction, are not surpassed by any water-works in the country of the same class, and could not be replaced to-day for eight hundred thousand dollars. They have carried the water of Mill river throughout the city. The benefit thus conferred upon the public it is difficult to estimate. Hundreds of thousands of dollars have undoubtedly been saved by them in the prevention of fires ; and, in whatever they have done, they have uniformly had the approval of the constituted authorities of the city, and no complaint whatever has ever been manifested by the general public.

But while rendering this service to the community, the stockholders have never received one dollar in return for their investment, (made nearly eight years ago,) with the single exception of one dividend of *two* per cent., declared during the last winter, and their stock has never reached par.

Under these circumstances, it seems to the undersigned that honor, justice—the simplest rules of right—demand that the State should protect this Company from interference by another organization. Of course the State has not given up its legal power to grant another charter to a different organization for the same purpose. But there is an implied pledge, an honorable, moral obligation, attending the grant of every charter for a public work, that so long as those receiving it fulfill their obligations to the public in the performance of that public work, the State, on its part, as the representative of the public, will do nothing to prevent their receiving a reasonable reward for the benefits they have rendered the community. This is not the case of an overgrown corporation, unable to comply with the public necessities, and yet

desiring to accumulate large profits out of those it does not serve, but of a young and struggling company, which has fulfilled every obligation required of it by the public without receiving anything of profit from that public in return. To take away their charter would be a monstrous injustice. But no reasons should justify the granting of a new charter, that would not justify the repeal of the old charter. If the present Company can supply the city of New Haven with water, there is no necessity for a new company. If it cannot, there is no necessity for its continuance.

FOURTH. The resolution reported by the majority of the committee, amending the charter of the Fair Haven Water Company is, in the opinion of the undersigned, highly objectionable.

By its first section, it provides that the Fair Haven Water Company may lay pipes *through the city of New Haven* for the purpose of conducting water from what is called Maltby Park to the village of Fair Haven. It will be noticed that this authority is granted outright, and not made to depend upon the popular vote provided for in the subsequent sections. Now no such authority was asked for before the committee. No evidence was heard respecting it. The remonstrants were not called on to meet any such question. The city of New Haven, whose streets are thus summarily taken for the use of an outside corporation, were not notified of, and had no opportunity to be heard on, any such claim. But the claim is, upon its face, preposterous. The village of Fair Haven is at least four miles from Maltby Park, with the city of New Haven intervening. It cannot be seriously contemplated by any reasonable person to construct these works for the purpose of supplying the village of Fair Haven with water. But if the pipes are once admitted into the city of New Haven, though under this pretence, the claim to tap them for use in that city will very soon follow. The circumstances under which the charter of the Fair Haven Water Company was obtained by its present possessors are confirmatory of this. That charter was granted in 1861. The petition asking for

it (now on file in the secretary's office) represented that the petitioners contemplated taking water from the elevated ground in the immediate vicinity of Fair Haven. They disowned all connection with the parties who under the name of "B. Noyes and others" were, the same year, unsuccessfully prosecuting a petition for authority to bring water from the Maltby Park pond into the city of New Haven, and they agreed to the incorporation of the following provision into their charter. "Provided, however, that nothing in this act contained shall be so construed as to allow said company to lay any pipes within the limits of the city of New Haven, or to do any other act for the purpose of introducing water within the limits of said city." Upon the faith of that agreement, their charter was granted. Immediately after the adjournment of the Legislature, this charter thus obtained, was transferred to "B. Noyes and others," and has been used ever since as the cover for the introduction of water into New Haven, not the first step ever having been taken under it to introduce water into the village of Fair Haven in accordance with the petition upon which the charter was obtained.

The second section of the resolution authorizes the Fair Haven Water Company to supply any part of the town of New Haven (including of course the city) with water, but the authority is coupled with this novel proviso:

"Provided that the provisions of this second section shall not take effect nor be operative, until adopted by a vote of the legal voters of the town of New Haven."

This is the first time, the undersigned believe, that the General Assembly have been asked to submit a private act of incorporation, or an amendment to a private act of incorporation, to the popular vote of the community in which that private corporation intends to carry on its business. Amendments to the charter of a public corporation, as of a city, are, of course, frequently submitted to the members of that corporation, that is the freemen, for their approval. For instance, an amendment to the charter of the city of Waterbury, authorizing that city to enter upon the construction of water works, and an amendment of the charter of the city

of New Haven, authorizing that city to take stock in the New Haven and Derby Railroad Company, have, by the present Legislature, been respectively submitted to the vote of the freemen of those cities. The reason is obvious. Every freeman in those cities is interested as a tax-payer, either present or prospective, in the question submitted. That interest, if it does not give him a right to act on the question, at least leads him to examine it, to weigh the probable loss and advantage to himself as a member of the corporation which is to engage in the proposed work, and to act accordingly. But what interest have the "legal voters of the town of New Haven" in the question whether this or that private company brings water into the city, or whether the New Haven Water Company ever earns a dollar or not? The same interest that they have in any private enterprize, and no more. In one event they hope to gain some possible advantage. In no event will it cost them anything. They may possibly hope to get water for nothing. If they do not, the loss will not fall upon them.

If such a principle as this is adopted as a precedent no application from any quarter for a charter for a Water Company, or Gas Company, or Horse Railroad Company, or any corporation carrying on a local business should be refused, but without any inquiry into its necessity, a submission of the charter to a popular vote of the community in which it is to be located will conveniently relieve the General Assembly of all further responsibility.

The undersigned can not but regard such a principle as absurd. The responsibility of conferring corporate powers, belongs to the General Assembly, and to no one else. And they have no right to confer such powers as are conferred by this bill upon any one unless the public necessity demands them. That question of necessity the Legislature must decide. They can not devolve it upon any other tribunal.

It may be said that the streets of New Haven are to be used by this corporation and therefore the public are interested in the question. A stronger reason could not be offered against the submission provided by this bill. The sole and exclusive

control and authority over the streets of New Haven are by the charter of the city conferred upon the Court of Common Council of the city. And they act through a Board of Road Commissioners created by special act of the Legislature. The "legal voters of the town of New Haven," have nothing whatever to do with the control of these streets. If what is sought by this submission is to obtain the judgment upon this matter of those authorities of New Haven who have been constituted by the General Assembly as the guardians of the public interests of that city, the provision is unnecessary, for the Mayor of the city, the Aldermen, the Common Council, the Board of Fire Commissioners, the heads of the Fire Department, every official who is in any manner connected with the administration of the city government in matters affected by this question, have without a dissenting voice remonstrated against the granting the prayer of the petitioners.

In conclusion, the undersigned would call the attention of the General Assembly to an important consideration which in their judgment should have great influence upon their action. At the last session of the General Assembly, a similar petition was preferred and the same project underwent a thorough investigation in New Haven, where the works of the New Haven Water Company and the site of the proposed ponds of the petitioners were in full view, and the quality of the water supplied by the New Haven Water Company undergoing the test of constant experience by the members of the General Assembly. But the petitioners had leave to withdraw by a most emphatic vote of the General Assembly, nineteen votes only being given in its favor in the House, and not one in the Senate. Such an adjudication ought to be conclusive.

The undersigned for the foregoing reasons recommend that the petitioners have leave to withdraw.

All which is respectfully submitted,

GEORGE M. LANDERS,
ARTHUR W. BACON.

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REPORT OF THE MAJORITY

OF THE

RAILROAD COMMITTEE,

ON THE PETITION OF THE

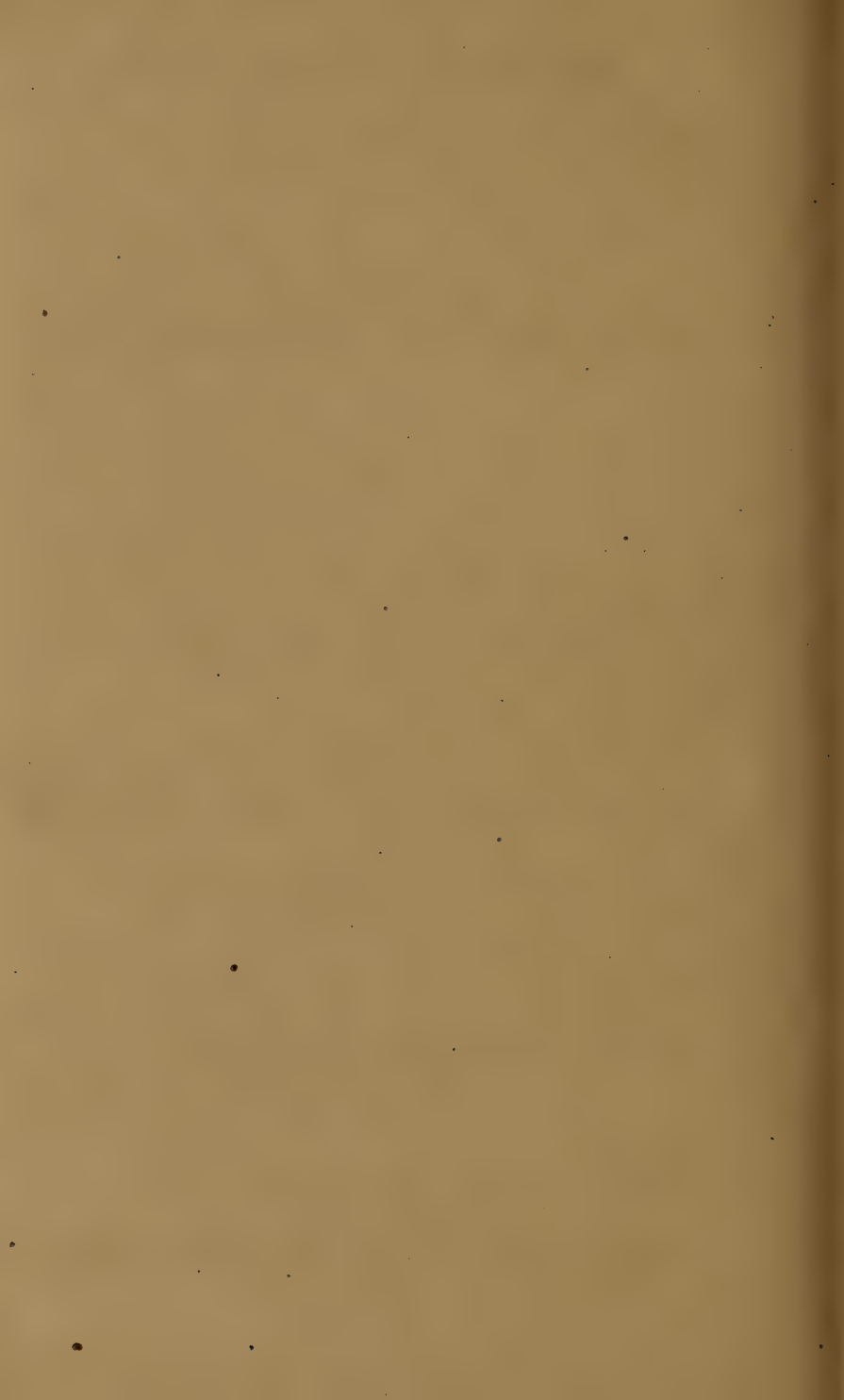
SHORE LINE RAILWAY,

FOR AUTHORITY TO CONSTRUCT A BRIDGE

ACROSS CONNECTICUT RIVER.

Printed by Order of the Legislature.

HARTFORD:
CASE, LOCKWOOD AND COMPANY, PRINTERS.
1867.



REPORT.

GENERAL ASSEMBLY,

MAY SESSION, 1865.

The Joint Standing Committee on Railroads, to whom was referred the petition of the Shore Line Railway for authority to construct a bridge across Connecticut River, having had said petition under consideration, by the undersigned, a majority of said committee, beg leave to report as follows:

The Shore Line Railroad is an important part of the shortest existing railroad line from New York to Boston.

This line is broken by the Connecticut River at Lyme.

The resources of the Shore Line Company are constantly and heavily drained by the maintenance of a ferry at that place.

If a bridge could be used there in lieu of the ferry, the Shore Line Road (relieved from this burthen,) would rise to the rank of a first-class railroad.

The full development of this public work by the construction of said bridge, would greatly benefit the State at large in various ways.

It would facilitate communication between the eastern and western sections of the State—particularly along the seaboard.

It would especially benefit that portion of the State lying east of the river, by facilitating its communication with New York.

The accompanying bill carefully guards against injury by the proposed bridge to the navigation of the river.

Among other things, the bill provides—

1st. That the bridge shall be furnished with two draws, each of which shall be *not less* than one hundred and twenty feet wide.

2d. That the bridge shall be built upon such plan as shall be approved by a board of engineers to be appointed by the superior court; so that if draws *more* than one hundred and twenty feet wide shall be needed, they will be made as much wider as may be necessary, however great the requisite width may be.

3d. That the Shore Line Company shall, by a tug or tugs constantly kept in readiness, tow all sailing vessels through said draws, gratuitously, whenever required.

4th. That the company shall maintain lights and fog signals upon said bridge, and shall furnish such other facilities for the passage of vessels through said draws as the Railroad Commissioners may require.

Not going into needless details, but calling the attention of the General Assembly particularly to the careful manner in which all interests involved in this case are protected by the accompanying bill, the undersigned recommend that the prayer of the petition be granted, and that said bill be passed.

All of which is respectfully submitted,

NATHANIEL SMITH,

Chairman on the part of the House.

F. A. ROCKWELL,
LUCIUS BRIGGS,
NEHEMIAH GATES,
L. L. DICKINSON.

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MAJORITY REPORT

OF THE

JOINT STANDING COMMITTEE

ON

CITIES AND BOROUGHES,

ON

Dividing Town of Haddam into Voting Districts,

TO THE

GENERAL ASSEMBLY,

MAY SESSION, 1867.

Printed by Order of the Legislature.

HARTFORD:

PRESS OF CASE, LOCKWOOD AND COMPANY.

1867.



REPORT.

GENERAL ASSEMBLY, }
May Session, A. D. 1867. }

THE Joint Select Committee on Towns and Boroughs, to whom was referred Senate Bill No. 13, being a bill for a public act, entitled "An Act dividing the town of Haddam into Voting Districts," and sundry petitions and remonstrances concerning the same, beg leave to report:

That they have had the same under consideration, and find the following facts:

First, That a part of the town of Haddam, containing about ninety voters is separated from the rest, by the Connecticut River; that the present place of voting is at Haddam, on the west side of the river; that the crossing the river for the purpose of voting is always attended with inconvenience, and sometimes with great difficulty and danger; that of the voters east of the river, seventy-nine have petitioned for a division of the town into voting districts; and that a district school-house stands near the center of said east portion of the town, and would afford a convenient place of voting.

Second, That the remainder of said town stretches along the west side of the river for a distance of nine miles, and contains two well-defined village centers; Old Haddam, the present voting place, and Higganum about three miles north.

The latter is a thriving, growing village with two churches, a post office, three or four stores, and considerable manufacturing business.

Concerning the amount of this business, there was some conflict of testimony, but it was sufficiently established, that although somewhat depressed during the war, it is now an active, important and increasing interest, promising to add greatly to the relative importance of this part of the town.

The bill before the committee proposes to divide the town into three voting districts ; the first to contain Haddam village, and so much of the town as by the usually travelled roads is nearer to that village than to Higganum ; the second Higganum village, and the remainder of the town west of the river ; the third, Haddam Neck, or that part of the town east of the Connecticut, and such division seems to your committee both just and expedient.

The evils attending the crossing of the river at the season of the spring election, were so forcibly shown before the committee, and were so obvious in themselves, that the able counsel for the remonstrance soon yielded the point, and assented to this part of the measure.

The separation of the Second District from the First, was strenuously resisted, but the remonstrances failed to satisfy your committee that by such separation any injury would be done to the town of Haddam or to any of its inhabitants.

Of about two hundred and twenty-five (225) voters in the proposed second (or Higganum) district, it was shown that there are one hundred and seventy (170) either now residing in Higganum, or who have to pass near or through it in going to the present voting place at Haddam, who would save six miles travel each election day should the proposed division be made. Twenty-seven (27) would save two miles each, and the remainder of the inhabitants are about equally distant from the two villages, making in all a saving of over a thousand miles unnecessary travel.

Careful enquiries were made of the witnesses for both parties, as to any possible personal inconvenience or damage to any of the inhabitants from the division, but the committee were unable to discover that a single individual would be in any wise injured by it ; while to very many it would be a great and positive benefit.

Your committee therefore recommend the passage of the accompanying bill.

•All of which is respectfully submitted.

E. D. BROCKWAY,
JOHN DAY FERGUSON,
WILLIAM MACK.

REPORT
OF THE
JOINT SELECT COMMITTEE
ON
FEDERAL RELATIONS.

Printed by Order of the Legislature.

HARTFORD:
CASE, LOCKWOOD & COMPANY.
1867.

REPORT.

GENERAL ASSEMBLY, }
May Session, A. D. 1867. }

THE Joint Select Committee on Federal Relations, to whom was referred that portion of the Governor's Message relating to National Affairs, beg leave to report, that they have had the same under consideration, and herewith submit the following resolutions as the results of their deliberations :—

Whereas, the Constitution of the United States prescribes, without ambiguity, the full measure of our obligations to the Federal Government, in declaring itself and the laws of the United States made in conformity with its provisions, the supreme law of the land ; and whereas, the federal government derives its existence alone from the Constitution, and has no necessities that lie out of or beyond its written provisions, while the States themselves (the original thirteen) gave existence to the fundamental law ; and whereas, the existence of our republican institutions depends as vitally upon the Constitution in its reservations of rights to the States as in its grants of power to the federal government, since these reservations are as much a part of the supreme law of the land as the express grants themselves ; therefore it is

Resolved by the General Assembly of the State of Connecticut, that the attempt to strike down the test of this fundamental law by denying the ten states of this Union the right to representation in the Congress of the United States, is a blow aimed directly against the Constitution ; a most dangerous infraction of our governmental system, a usurpation of

power incompatible with any conceivable circumstances in which our country can be placed, and far more revolutionary, in its immediate effect upon our institutions, than any or all the dogmas of secession put together.

Resolved, That the partitioning up of these ten States into military districts with the establishment of Military governments therein and the appointment of departmental commanders who are not only independent of, and superior to the civil power, but who by their Military orders, assume to displace the highest executive and judicial officers of these States, and substitute their temporary edicts for the most fixed and permanent laws, is not only a fundamental departure from our republican system of government, and a direct step towards despotism, but is, in fact, the consummation of despotism itself.

Resolved, That the proposition to force negro suffrage upon the States of this Union is without justification in the creed of any party heretofore existing in this country; is a direct encroachment upon the reserved rights of the States; an attempt to degrade the elective franchise, to mongrelize the government, and bring about that unchecked centralized despotism which has displaced nearly all the Central and South American Republics.

Resolved, That the recent multiplication of the Federal Government of such institutions as Military bureaus, and bureas of education, of industry, of arts and sciences, and commissionships and superintendencies of various branches of business, such as legitimately appertain to the people in their individual capacity, or associated action, is only another evidence of the many insidious steps that are now being taken to break down the fundamental law, to supplant the rights of the States, and ultimately to bring about that centralized system of government, against which the framers of the Federal Constitution guarded with such scrupulous care.

Resolved, That it is the right and duty of every State in the Union to maintain in a constant condition of efficiency, such a militia force as will answer all possible wants for the enforcement of its own laws, and meet in all emergencies the demands of the Federal Government; and that any proposition to take from the States this right and to give to the general government the sole control of the Militia, and thus the sole power to enforce State laws, and suppress local violence, is without constitutional warrant, subversive of the rights of the States, a direct step towards consolidation, and one fraught with imminent peril to the liberties of the people.

ISAAC T. ROGERS,
F. L. ALLEN,
ELDRIDGE SMITH,
PEARL WILLIAMS.

